

TRANSMITTAL PAGE

Please change pages as follows:

Remove and Destroy:

PRODUCT 4045 and NS 8000 Laser CPs, and XP-10 Printers	TITLE Xerox 4045 Laser CP Product Support Manual	PART No. 600P87495
STATUS This Manual represents the V31 018309 hardware configuration with Revision A1.2 - 1.0 - 1L software		REVISION LAUNCH REISSUE

Change Highlights

**XEROX 4045 LASER CP
PRODUCT SUPPORT MANUAL
600P87495
AUGUST 1985**

This Manual includes all versions of the XP-10.

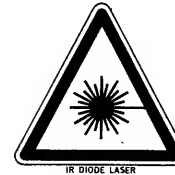
WARNING

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions manual may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to correct the interference.

Prepared by:
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Printing Systems Division
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DANGER
LASER INVISIBLE RADIATION
When cover removed and
interlock defeated (power
cord plugged in) avoid direct
exposure to the beam.



WARNING
LASER RADIATION
AVOID DIRECT EXPOSURE TO BEAM

CLASS I Laser Product

WARNING
LASER RADIATION
AVOID DIRECT EXPOSURE TO BEAM

CLASS I Laser Product

The Xerox 4045 is certified to comply with Laser Product Performance Standards set by the U.S. Department of Health and Human Services as a Class I Laser product. This means that this is a class of Laser Product that does not emit hazardous Laser radiation; this is possible only because the Laser Beam is totally enclosed during all modes of customer operation.

The Laser and output of the ROS produces a beam that, if looked into, could cause eye damage. Service procedures must be followed exactly as written without change.

When servicing the machine or Laser module, follow the procedures specified in the manual and there will be no hazards from the Laser.

UV06-000

**DIAGNOSTICS
CALL FLOW
LEVEL 1**

**LEVEL 2
CORRECTIVE
ACTIONS**

**SERVICE
DATA**

**PARTS
LISTS**

**SUPPORT
DATA**

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ABOUT THIS MANUAL

This manual is a multinational document which will provide a Service Representative with information to isolate and repair faults in the Xerox 4045 Printer/Copier and other versions of the XP-10.

This manual contains all the necessary elements of a service documentation system including parts lists, service procedures, and a fault analysis section.

A publications comment sheet is provided at the end of this manual.

ORGANIZATION

This manual is divided into five sections. The title and description of each section are given below.

SECTION 1 INTRODUCTION

The Introduction contains information on manual layout, usage and revision procedures. Also included are Diagnostic and Call Flow Procedures and the Level 1 Entry.

SECTION 2 LEVEL 2 CORRECTIVE ACTIONS

This section includes Problem Checklists for Print/Copy Quality defects, Repair Analysis Procedures (RAPs) and Component and Plug/Jack Location Drawings.

SECTION 3 SERVICE PROCEDURES

This section contains the procedures for Extended Maintenance, Component removal and replacement (Repairs), and Adjustments.

SECTION 4 PARTS LISTS

This section contains exploded view drawings and parts lists.

SECTION 5 SUPPORT DATA

This section contains general information on communications tests, the Change Tag Index, use of Test Patterns, Configuration Switch settings, Installation Procedure, tools and supplies, and a Glossary.

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HOW TO USE THIS MANUAL

Start with the Call Flow Procedure (1-4).

Use the Normal Call if 2,000 prints/copies have been made since last service call.

Use the Call Back procedure if less than 2,000 prints/copies have been recorded on the billing meter.

Perform Interim or Extended Maintenance if more than 10K or 35K prints/copies, respectively, have been produced since maintenance was last performed.

Functional Checks are used to identify problems and verify Printer performance.

Use the Level 1 Entry to classify the problem. Refer to Level 2 Entry for Corrective Actions. After Corrective Actions have been performed return to Call Flow to perform Final Actions.

If a problem has been reported that cannot be resolved using this manual, call the Technical Support Center at 800-633-3345.

Unless otherwise stated, all procedures are written assuming that the Front and Top Covers have been removed and that the Printer is in a "Service Diagnostics" mode. Refer to page 1-2 for a description of diagnostics.

MANUAL REVISION

This Service Manual will be updated as new problem areas are identified or, design changes are cut-in.

SYMBOLLOGY**NOTES**

This symbol is used to refer to notes, usually on the same page.

**ADJUSTMENT**

This symbol indicates that this electrical component has an adjustment procedure.

**REMOVAL/REPLACEMENT**

When this symbol occurs on a Parts List, it indicates that the part or group of parts has a Repair procedure included in Section 3.

**ADJUSTMENT PROCEDURE**

This symbol indicates that the part being replaced requires an adjustment which is included in Section 3.

**INPUT VOLTAGE**

This symbol indicates that voltage is distributed throughout a component from this point.

**VOLTAGE**

This symbol indicates that voltage is distributed from an input point.

**TAG (RETROFIT) MODIFICATION**

This symbol indicates that a retrofit tag applies to a particular part.

**TAG (RETROFIT) MODIFICATION**

This symbol indicates that a retrofit tag does not apply to a particular part.

**SIGNAL FLOW**

This symbol indicates the direction of signal flow.

**FEEDBACK SIGNAL**

This symbol indicates that this signal is a feedback type signal.

**TEST POINT**

This symbol indicates that this is the most effective test point available for a particular voltage check.



SERVICE DIAGNOSTICS

Service Diagnostics provide component control and system exerciser tests. Service Diagnostics are enabled by the following two methods:

- o Remove the Top Cover.
- o With the Top Cover installed, press and hold the LAST PAGE and RESET Switches while switching power ON.

In Service Diagnostics Mode, the Control Panel will display a number followed by the letter L. The number represents the software revision level.

To exit Service Diagnostic Mode, switch power OFF and ON or enter Diagnostic Code 98.

COMPONENT CONTROL TESTS

The input tests allow inputs to the IOTC (switches, sensors, etc.) to be tested for proper operation. The output tests allow outputs from the IOTC (solenoids, clutches, etc.) to be energized.

How to enter a component test from the Service Diagnostics mode:

1. Refer to the "Component Control Code" list that follows.

2. Press the LAST PAGE Switch to enter the first digit of the code number.
3. Press the RESET Switch to enter the second digit.

To perform OUTPUT tests

1. Press the OFFLINE switch to energize the component.
2. Press the OFFLINE switch again to de-energize the component.

OUTPUT COMPONENT CONTROL CODES

<u>Component</u>	<u>Code</u>
Control Panel Indicators	10
Buzzer	11
Main Drive (includes Erase Lamp and Sump Motor)	30
Fan	31
Exposure Lamp	32
Billing Meter	33
CVT Clutch	51
Paper Feed Clutch	81
Toner Motor	75
Doctor Blade Solenoid	96

To perform INPUT tests

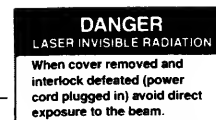
1. Press the OFFLINE switch. The OFFLINE indicator and PLEASE WAIT lamp will go ON.
2. Physically actuate the component. The PLEASE WAIT lamp will go OFF and the READY lamp will go ON. Also, the Buzzer will energize (beep) if the component is functioning correctly.
3. Press the OFFLINE switch again to deselect the component. The OFFLINE indicator will go OFF.

NOTE: The input tests will not identify a misadjusted or misaligned switch or sensor.

INPUT COMPONENT CONTROL CODES

<u>Component</u>	<u>Code</u>
Latch Sensor	12
Top Cover Sensor	13
Document Detect Sensor	50
Document Registration Sensor	52
Home Position Sensor	80
Paper Registration Sensor	82
Paper Exit Sensor	83
Tray Sensor #1	84
Tray Sensor #2	85
Tray Sensor #3	86
Toner Sensor	95

(Diagnostics continued on next page)



DIAGNOSTIC EXERCISERS

In the Service Diagnostics mode there are "set-up" routines and print test patterns that are enabled like the component control tests. Since some of these exercisers cause the ROS to energize, a special **"Laser Safety Code" (99)** must be entered before the test will run.

- o Enter the test code using the LAST PAGE and RESET switches.
- o Press the OFF-LINE switch. If the OFF-LINE lamp flashes, the Laser Safety Code must be entered.
- o Enter **99** using the LAST PAGE and RESET switches.
- o Press OFF-LINE again to start the exerciser.
- o A listing of the set-up routine and test pattern codes follows.

If a paper jam occurs during Service Diagnostic mode, proceed as follows:

- o Clear paper path.
- o Switch power off and on.
- o Restart test.

4045/XP-10E (With ESS)

<u>TEST</u>	<u>CODE</u>
CVT Copy (Original must be inserted)	20*
ADC Set-Up	22*
Fuser Set-up	24
Light Dusting (exposure lamp)	26
Horizontal Lines	28*
ESS-MPU Test	36**
ESS-Main Memory Test	37**
ESS-DRAM Test	38**
ESS-Band Buffer Test	39**
ESS-ERR Test	40**
ESS-Host Interface Test	41**
Print Test Pattern	42*
ESS-Character Proof Prints	43*
Go Online	45*
ESS-Serial Loopback Test	46
Drum Break-in Cycle	71*
High Transfer (envelopes)	72
High Dev. Bias (copy mode)	73
Tone up	75
Dark Dusting	76
Light Dusting (ROS)	77*
Exit Service Diagnostic Mode	98

* Requires Laser Safety Code **99**

** Last Page Indicator (Green) light signifies successful completion of test. Test will repeat indefinitely until OFF-LINE switch is pressed.

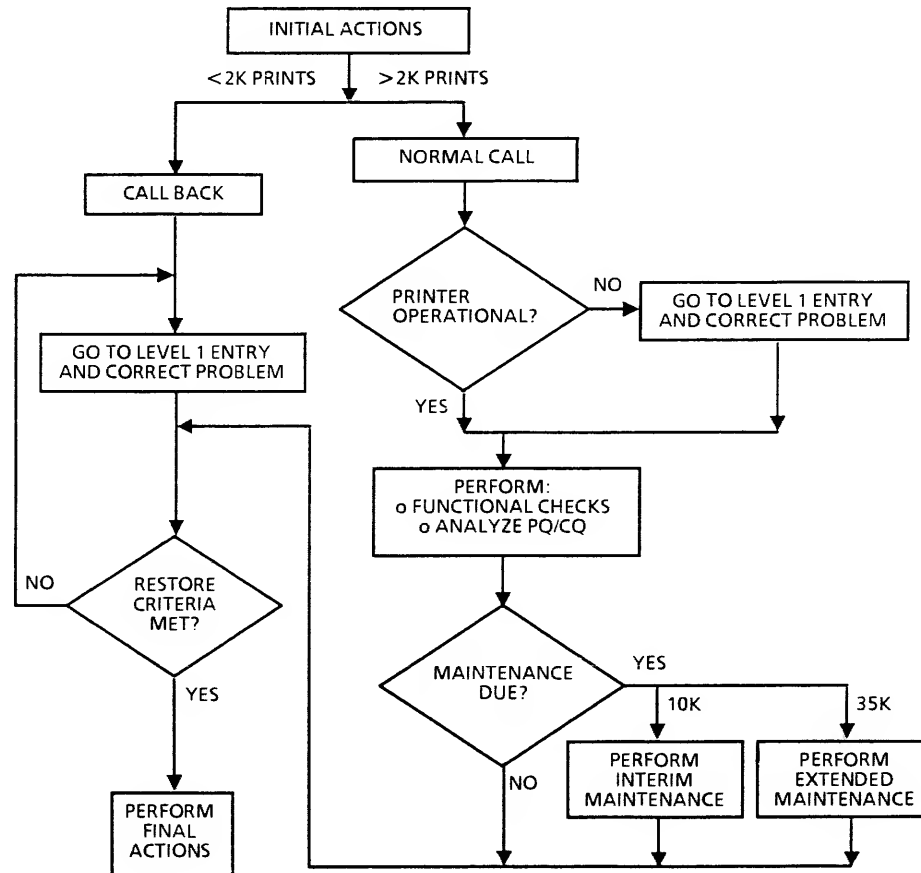
NS 8000 Laser Cp

Codes 20 through 28 and 72 through 77, operate as they do in the 4045. Additional tests are generated by the NS 8000 Laser CP.

Listed below are the failure responses of the NS 8000 Laser CP. In case of failure, follow specific instructions or go to the C-Video RAP on Page 5-12.

<u>TEST</u>	<u>CODE</u>
Print Test Pattern	42*
Failure:	
FE - File Error - Have operator load file LaserCPAlignmentPattern.interpress	
Service Rep Log	43*
Failure:	
No special codes. Go to C-Video RAP.	
Image Test (Results delayed 15 sec)	44*
Failure: (JJ indicates test OK)	
FE - File Error - Have operator load file GreyDusting.interpress	
F1 through F8 - Go to C-Video RAP.	
C-VIDEO Command/Status Loopback	47
Failure:	
No special codes. Go to C-Video RAP.	

During Codes 42, 43, and 44, the Printer Console displays the number of pages printed. Tests 42 and 43 will repeat indefinitely until OFF-LINE switch is pressed. Test 44 makes one print.



CALL FLOW

INITIAL ACTIONS

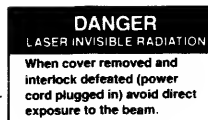
- o Question Operator and verify problem.
- o Record Meter Reading
- o Check Printer Service Log to determine Call Type and required Maintenance Activities.
Call Type depends on number of prints/copies made since last Service Call.
 - o CALL BACK - less than 2K.
 - o NORMAL CALL - more than 2K.Required maintenance activities depend on number of prints/copies produced since last time maintenance was performed.
 - o INTERIM MAINTENANCE - every 10K prints and copies.
 - o EXTENDED MAINTENANCE - every 35K prints and copies.

CALL TYPES

- CALL BACK (less than 2K prints since last service call)
- o Go to LEVEL 1 ENTRY (1-9).
- NORMAL CALL (more than 2K prints since last service call)
- o Perform Functional Checks (1-6).
 - o Perform Interim or Extended Maintenance, if required.
 - o Go to LEVEL 1 ENTRY

FINAL ACTIONS

- o Verify Print/Copy Quality has been restored. Go to Page 1-6 for Restore Criteria Checklist.
- o Replace covers
- o Clean the machine and the work area.
- o Have customer send a print job to verify printer operation.
- o Provide operator training as required.
- o Generate a Soft Reset (4045 ONLY).
- o Update Service Log and Tag Matrix.
- o Store the Configuration Sheet and test prints/copies with the Service Log.
- o Close the call.



RESTORE CRITERIA CHECKLIST

Prepare check prints and copies:

- o Enter Code 42* and generate two (2) test prints.
- o Produce two (2) copies of Copy Test Standard 82P506.

Check prints and copies for the following:

- o All SAD targets are between 1.0 and 1.3.
- o No background on the prints.
- o Copy background is below "Area 3" on 82P506.
- o No other print or quality defects.

10K INTERIM MAINTENANCE CHECKLIST

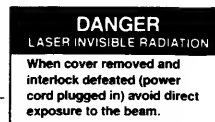
The following are the maintenance tasks required for Interim Maintenance.

- o Clean the Scorotron Assembly with a cloth dampened with Film Remover (US), Step 2 Wash (RX). See Page 3-2 for details.
- o Clean the ROS Window with Lens and Mirror Cleaner. See Page 3-1 for details.
- o Clean the bottom of the Quartz Shield and Fuser Reflector with a Fuser Solvent Pad. See Page 3-8 for details.
- o Check the condition of the Fuser and CVT ventilation seals. Replace if necessary.
- o Wipe Patch Sensor with a dry cloth.

35K EXTENDED MAINTENANCE CHECKLIST

The following are the maintenance tasks required for Extended Maintenance. Refer to Page 3-1 for the detailed Extended Maintenance Procedure.

- o Clean ROS Window.
- o Clean CVT, if installed.
- o Replace Developer Filter.
- o Clean Scorotron Assembly.
- o Clean and inspect Doctor Blade.
- o Remove and inspect the Drum and clean the Xerographic cavity.
- o Replace Developer
- o Empty Toner Sump.
- o Clean Fuser and Paper Path components.
- o Perform Electrostatic Series.
- o Reassemble and perform Restore Criteria Tests.



FUNCTIONAL CHECKS

NOTE: If printer is not operational, go to Level 1 Entry to correct the problem, then perform the functional checks.

- o Enter diagnostic mode (1-2).
- o Check Control Panel indicators (code 10).
- o Record meter reading.
- o Run five test prints (code 42*).....
- o Run two copies of 82P506 (code 20*).....
- o Run two dark dustings (code 76*).....
- o Run two light dustings (code 77*).....
- o Check that Billing Meter advanced by eleven.
- o Run envelopes as required.

TEST PATTERN EVALUATION

Use the test prints/copies generated in Functional Checks to evaluate the defects listed below. If defects are found, go to the Print/Copy Quality Level 2 Entry (2-3).

.....Check for Solid Area Density (SAD), ROS exposure level, residual image, smears, skew (paper path), smudge, unfused prints, background or misregistration (ROS).

.....Check for high background areas, misregistration (CVT), document skew through CVT or skips.

.....Check for white lines (deletions) or uneven density.

.....Check for background, background bands, lines, streaks or spots.

NOTE: Drum defects (spots, marks) always repeat page to page, and are offset by 4 inches (10 cm).

DEFINITION OF MAJOR DEFECTS

NOTE: Some defect samples are shown in the Problem Checklists in Section 2.

Streaks or Bands

Lines or narrow areas of background across the page from lead to trail edge, (top to bottom).

Residual Image

Toner image from a previous page that was not removed by the cleaning blade.

Skips and Smears

Show as a separation and compression of the vertical ladder lines of the copy and print test patterns. Skips are caused by a document feed problem (CVT). Smears are caused by a paper path problem, in either copy or print mode.

Smudge

Movement of toner from an image area to a non image area.

Deletions

An area of the print or copy where the image is missing or extremely light.

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LEVEL 1 ENTRY

<u>PROBLEM</u>	<u>CORRECTIVE ACTION</u>	<u>PROBLEM</u>	<u>CORRECTIVE ACTION</u>
o BLANK DISPLAY or PRINTER IS "DEAD"	Go to Blank Display RAP (2-30).	o ERRATIC OPERATION or SOFTWARE "LOCK-UP"	o Check for arcing High Voltage components (Scorotron, H/V Cables, etc).
o STATUS CODE - (any)	4045/XP-10E - Go to Status Code Level 2 Entry (2-1). NS 8000 LASER CP - Go to Level 2 Entry (2-2).		o Intermittent or out of tolerance Low Voltages will cause the Printer to behave in a strange manner. Go to Low Voltage Power Distribution RAP. (2-27).
o WILL NOT PRINT	Printer is "READY" but does not respond to the Host. Go to Will Not Print RAP (1-10)	o INCORRECT/IMPROPER PRINTING	o Call for assistance.
o WILL NOT COPY	Printer does not respond when document is inserted. No Status Code is displayed. Go to Document Detect Sensor RAP (2-33)		Go to Incorrect/Improper Output RAP (1-11).
o PAPER JAMS or False ADD PAPER Indicator	1. Press LAST PAGE Switch when the Jam Indicator or Add Paper Indicator is lit. Record the Status Code (C# or E#). 2. Go to Status Code Level 2 Entry (2-1).	o DOES NOT READ CARTRIDGE FONTS	Go to Font Sensor Checklist (2-49).
o PRINT/COPY QUALITY	Go to Print/Copy Quality Level 2 Entry. (2-3).	o SQUEAKS/NOISES	1. Energize Main Drives (Code 30) to locate source of noise. 2. Clean squeaky bearings and roller shafts with Film Remover (US) or Step 2 Wash (RX). 3. Replace bearings
		CAUTION: DO NOT USE OIL ON ANY PRINTER COMPONENTS.	
		o WATER ON PRINTS	Blower Motor is not operating. Go to Blower Motor RAP (2-24).

WILL NOT PRINT RAP

NOTE: This RAP is for the 4045 and XP-10E Printers only. If you have an NS 8000 Laser CP go to NS 8000 Laser CP RAP on Page 5-12.

NOTE: This RAP assumes that the Printer no longer responds to the Host, (that is, it was successfully installed and operational at one time).

The Printer is in a READY condition.

YES NO
| OFF-LINE or LAST PAGE indicators are
| ON.
| YES NO
| | Control Panel display is blank.
| | Go to Blank Display RAP (2-30).
| |
| Press LAST PAGE Switch or OFF-LINE
| Switch to clear the condition.

The Printer is connected directly to the Host.

YES NO
| A 274 or 275 IC is used.
| YES NO
| | A 280 ISD is being used. Go to
| | ISD installation procedure (5-
| | 41).
| |
| Go to 274/275 installation procedure
| (5-25).

A

A

|
Check cable connections between the host device and the Printer.

- o Print a Configuration Sheet and check the switch settings with Configuration Sheet stored in rear printer panel. Question customer if the settings are different.
- o Ask customer if host software or configurations may have been changed. If so, Printer may have to be reconfigured (5-6).

Perform one of the following interface tests, depending on the type of host interface. If test is successful, call for assistance.

- o Parallel test (for Centronics or Data Products), go to page 5-11.
- o ESS Serial Loopback test (for 4045 or XP-10E), go to page 5-11.

INCORRECT/IMPROPER OUTPUT RAP

This RAP assumes that the printer will respond to the host but the desired output is not being printed.

4045/XP-10 ONLY

NOTE: This RAP is for the 4045 and XP-10E Printers only. If you have an NS 8000 Laser CP go to NS 8000 Laser CP RAP on Page 5-12.

- o Print and save a Configuration Sheet, (hold RESET Switch and press OFFLINE Switch).

Configuration Sheet is defect free.

YES NO
 | Problem is evident on the Configuration
 | Sheet, (i.e., garbled print or
 | extraneous images), go to the
 | Print/Copy Quality Level 2 Entry (2-3).
 |

The 4045 is connected directly to the Host or an Interface Sharing Device (ISD).

YES NO
 | A 274/275 Interface Controller (IC) is
 | used. Goto page 5-25 and perform the
 | install procedure to verify that the IC
 | and printer configuration switches meet
 | the host/customer requirements.
 |
 | Go to A, next column.
 |

Refer to 5-6 and set the printer Configuration switches to meet the host/customer requirements. Go to A, next column.

A

|

If, after checking/resetting the printer and/or IC configuration switches, the output is still incorrect, perform the Parallel Interface or ESS Serial Loopback Test (5-11). If the test functions properly, call for assistance.

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CODE	REASON	ACTION
#L	Printer in Diagnostic Mode or Top Cover is removed, (# = software revision level)	Go to #L RAP. (2-26)
A1	Document jam	Go to A1 RAP (2-32)
A2	Original inserted in CVT while printer is OFF-LINE.	Press OFF-LINE switch (Instruct Operator)
C1	Feed Segments not home	Go to C1 RAP, (2-43)
C3	Paper Tray removed	Go to C3 RAP (2-40)
C4*	Paper failed to reach Registration Sensor.	Go to C4 RAP (2-42)
d#	Power On Diagnostic failure (# = 9,8,7,6,5 or 3)	Go to Power On Diagnostic Checklist (2-21)
E1*	Paper late to Reg. Sensor	Go to C4 RAP (2-42)
E2*	Paper failed to leave Reg. Sensor	Go to E2 RAP (2-44)
E3*	Paper failed to reach Exit Sensor	Go to E3 RAP (2-45)
E4*	Paper failed to leave Exit Sensor	Go to E4 RAP (2-45)
E5	Latch Handle open	Go to E5 RAP (2-26)

* Displayed when LAST PAGE is pressed after a paper jam.

CODE	REASON	ACTION
L2	SOS failure	Go to L2 RAP (2-36)
L3	Beam On failure	Go to L3 RAP (2-36)
L5	Beam Off failure	Go to L5 RAP (2-36)
OL**	No patch check	Go to OL RAP (2-54)
NOTE: The following corrective actions are for 4045/XP-10E only. Go to 2-2 for NS 8000 Laser CP corrective actions.		
P1	Power On failure	<ul style="list-style-type: none"> o Ensure that the Configuration Switch Cartridge is installed and that all switches are NOT OFF. o Replace Switch Cartridge. o Replace External ROM Receptacle (ERR).
PE	Parity Error	<ul style="list-style-type: none"> o Press RESET Switch o Check Configuration Switches, Parity Mode (5-6). o Perform Soft Reset (Hold RESET and press OFF-LINE). o Call for assistance.
P5/P6	Host Interface error (Serial)	<ul style="list-style-type: none"> o Perform Soft Reset (Hold RESET and press OFF-LINE). o Check Configuration Switch settings for Async Protocol (5-6). o Ask customer to ensure that the Host CTS feature is enabled. o Call for assistance.

** Displayed while printing Test Patterns in Service Diagnostics.

NS 8000 LASER CP STATUS CODES

NOTE: The NS 8000 LASER CP requires unique corrective actions for the Status Codes listed below. For any other Status Codes follow the normal corrective actions listed on Page 2-1.

The corrective actions for the following Status Codes are described in the C-Video RAP on Page 5-12.

CODE	REASON
L2	SOS Failure
L3	Beam On Failure
P1, P2, or P3	Image Fault Error in data transfer between Print Server and printer.
P4	Print Server not receiving status from printer.
P5	Print Server detected an error in the printing sequence.

QUALITY DEFECTS

Use the following table to locate the Problem Checklist for any print or copy quality defect that was found on the test prints produced during the Functional Checks.

Defect definitions and samples of print quality criteria are included with each Problem Checklist.

For **printers with a CVT**, use the COPY Test Pattern as an aid in isolating quality defects.

If a defect occurs **ONLY** in Copy Mode, the cause is probably CVT or Optics related.

If a defect occurs **ONLY** in Print Mode, the cause is probably ROS related.

If a defect occurs in **BOTH** Copy and Print Mode, the cause is probably xerographic (in the drum module).

PRINT AND COPY MODE DEFECTS:

Caused by Xerographics, IOT timing, gear drives, or optics (ROS/CVT) problems.

DEFECT	GO TO PAGE
BACKGROUND	2-4
BEAD CARRY-OVER	2-10
BLACK PRINT/COPY	2-6
BLANK PRINT/COPY	2-6
DARK IMAGE	2-8
DELETIONS	2-6
LIGHT IMAGE	2-7
LINES	2-8
MISREGISTRATION	
Top-To-Bottom w/CVT	3-50
Top-To-Bottom wo/CVT	3-51
Side-To-Side	3-52
RESIDUAL IMAGE	2-9
SCORCHING	2-9
SKEW	2-10
SKIPS	2-11

PRINT AND COPY MODE DEFECTS: - Cont'd

DEFECT	GO TO PAGE
SMEARS	2-11
SMUDGE	2-12
SPOTS/MARKS	2-12
STREAKS	2-13
UNEVEN DENSITY	2-13
UNFUSED PRINTS/COPIES	2-13

DEFECTS UNIQUE TO PRINT MODE:

Caused by ESS/Image Generation or ROS Electronics problems.

DEFECT	GO TO PAGE
WAVY CHARACTERS/IMAGES	2-14
CHARACTER DEFECTS	2-14
EXTRANEIOUS MARKINGS	2-15

BACKGROUND

BACKGROUND DEFINITION - A degree of darkness or dirt contamination overall or localized in the areas of a print/copy on which no image appears. See Figures 2-1 and 2-2 for examples of background.

No background should be visible on prints.

Background on copies should be below area #3 on the Copy Quality Rating Guide.

Follow the checklist on the following page for any background defect.

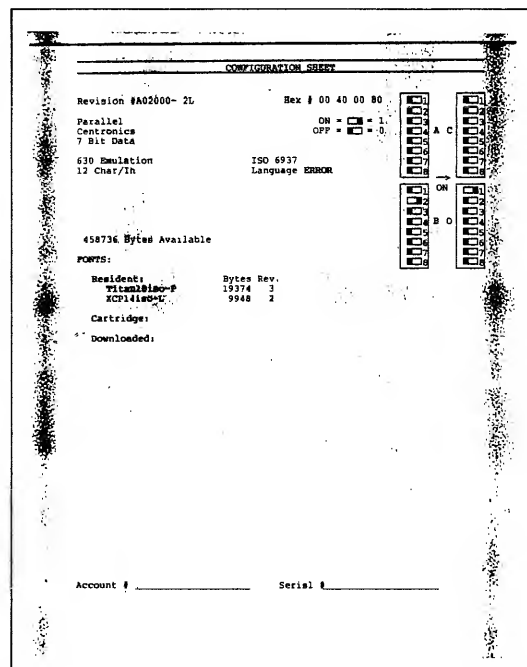
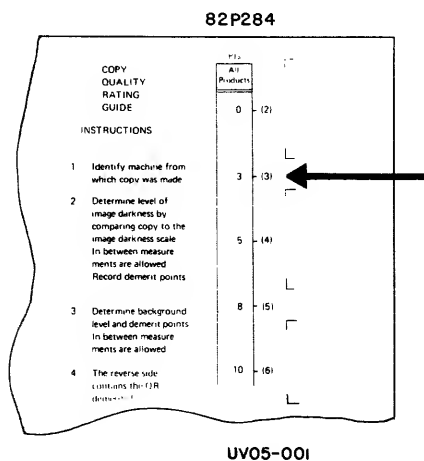


Figure 2-1. Background Band

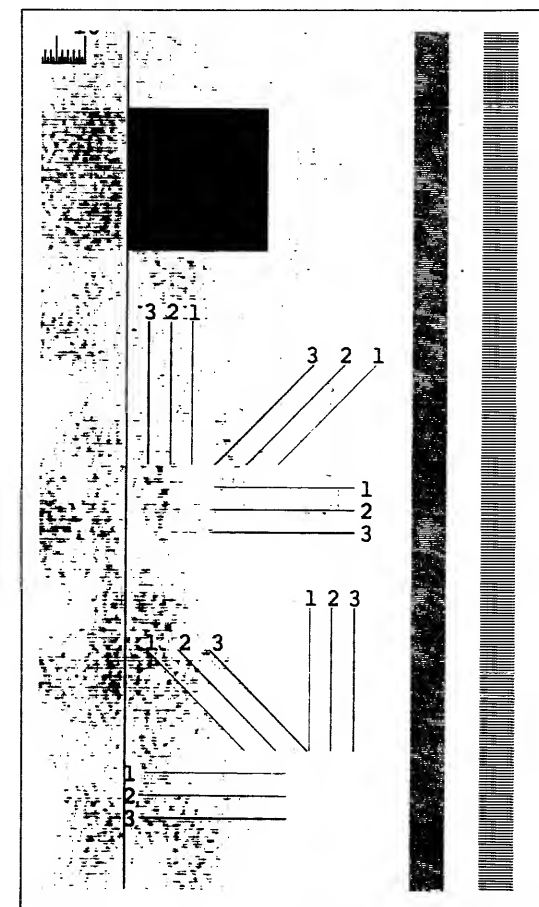


Figure 2-2. Structured Background

BACKGROUND CHECKLIST

Background is present on **copies only** (CVT mode).

YES NO

- | Background is present on both prints and copies. Continue below.
- |
- o Disassemble and clean the CVT (3-1).
- o Check condition of front and rear CVT Ventilation Seals. Replace worn seals.
- o If background still exists, replace Exposure Lamp.

Background is present on both prints and copies.

1. Remove the ROS and the CVT (3-30). Clean ROS Window, Platen Glass, and bottom of SELFOC lens with Lens and Mirror Cleaner.
2. Enter code 26. Check that the Erase Lamp lights. If not, go to Erase Lamp RAP (2-50).

3. Remove the Scorotron Assembly. Use brush to remove loose toner from the Scorotron. Remove the Screen and clean the following with Film Remover (US), Step 2 Wash (RX):

- o Shield
- o Screen
- o Corotron Wire
- o Erase Lamp
- o Light Bar

4. Check the Drum surface for toner filming. Go to the Drum Cleaning Checklist if filming is present.
5. Clean the Transfer/Detack Corotron.
6. Check the Developer Bias (3-49).
7. Perform the Electrostatics Series (3-43).
8. Adjust ROS power (3-45).
9. Replace the Drum (3-16).
10. Replace the Developer (3-4).

DRUM CLEANING CHECKLIST

Perform the following checks if toner filming is present on the Drum.

1. Enter code 96 and press OFF-LINE. Check that the Blade Solenoid energizes. If it does not, go to the Doctor Blade solenoid RAP (2-50).
3. Ensure that the Blade Translator is seated on the Cam.
4. Remove the Doctor Blade Assembly and clean the following components with Film Remover (US) or Step 2 Wash (RX):
 - Translation shaft.
 - Translation Cam and drive belt.
 - Translation Follower.
 - Blade Edge.
5. Apply Zinc Stearate to entire Blade surface before reinstalling it.
6. Ensure that the Blade is tightly seated and centered in the channel.
7. Adjust the Doctor Blade Solenoid (3-54).

If the background problem is not corrected, return to the Background Problem Checklist.

BLACK PRINTS (Copies are good)

A black print with no image.

Black prints or partial black prints are probably caused by a ROS beam obstruction.

- o Check that the Mag Roll Cover and ROS Assembly are properly seated.
- o If an image is visible, go to the Background Checklist (2-5).

BLACK COPIES (Copy Mode only)

A black copy with no image.

Exposure lamp does not light during copy mode.

- o Go to Exposure Lamp RAP (2-34).

BLANK PRINTS AND COPIES

No image at all appears on the paper in Copy Mode or Print Mode.

1. Check that the Scorotron HV lead P35 is seated into the front of the HVPS.
2. Check for a broken Transfer Corotron wire or arcing end blocks.
3. Check that the Screen voltage (800 to 840 VDC) is present at the Scorotron Shield (3-44).
4. Remove and inspect Scorotron for possible arcing.
5. Perform Electrostatic Series (3-43).
6. Remove Mag Roll Cover and check Mag Brush.

DELETIONS

An area of the Print/Copy where the image is missing. See Figure 2-3.

1. Ensure that the paper is not damp.
2. For vertical deletions (top-to-bottom of prints), clean the ROS Window.
3. Remove T/D Corotrons and Scorotron Assembly. Use a cleaning brush to remove loose toner. Clean with Film Remover (US), Step 2 Wash (RX).
4. Rotate the Mag Brush Knob and check the Drum surface for contaminants. Clean the drum if necessary (3-3). DO NOT WASH ENTIRE DRUM WITH FILM REMOVER.
5. Perform Electrostatic Series (3-43).
6. Check for uniform paper contact on drum. Reset Timing Belt tension. Do not apply pressure to the belt idler.

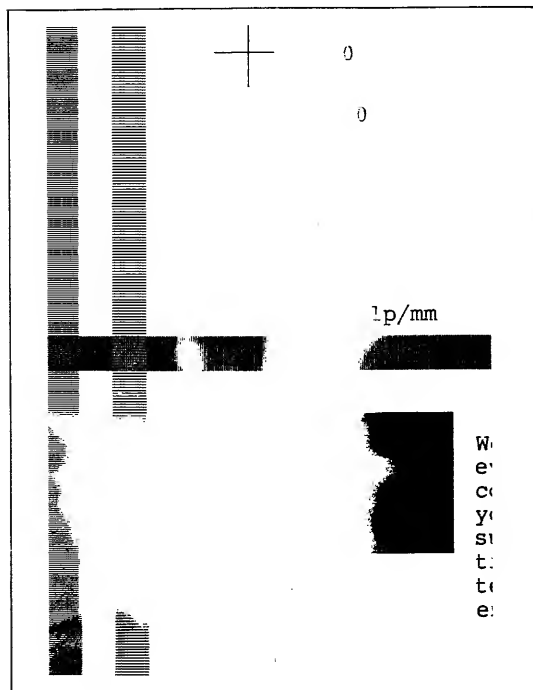


Figure 2-3. Deletion Sample

LIGHT IMAGE

A Print/Copy that has a light image as measured by the Image Density Test Pattern 82P520.

NOTE: Use this checklist for OVERALL Light Image Density. If problem is localized or varies page-to-page, go to Uneven Density Checklist.

1. If "OL" was displayed, go to OL Status code RAP (2-54).
2. Check for damp paper.
3. Check Developer life. If greater than 35K replace the Developer.
4. Check prints for proper fusing. If necessary, clean the Fuser (3-8) and adjust Fuser Power (3-49).

5. Check toner (Dry Imager) supply.

There is toner in the Hopper.

YES NO
| Go to Toner Sensor RAP (2-56).

Enter code 75 and press OFF-LINE. Check that the Mixer in the Toner Hopper is rotating. The Mixer rotates.

YES NO
| Go to Toner Motor RAP (2-56).

6. Slide out the Drum Module. Check that the auger turns freely by rotating the coupling at the rear of the Drum Module. Replace the Cleaning Auger Assembly (3-24), if necessary.
7. Clean the Scorotron Assembly and Corotrons with Film Remover (US) or Step 2 Wash (RX).
8. Perform Electrostatic Series (3-43).
9. Check Developer Bias (3-49).
10. Check/Adjust ADC (3-46).
11. Replace the Drum (3-16).

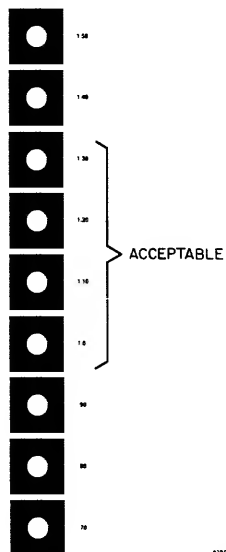
DARK IMAGE

Prints or copies where the Solid Area Density is greater than 1.3

1. If OL Code was displayed, go to OL Status Code RAP (2-54).
2. Check/adjust ADC (3-46).
3. Go to Background Checklist (2-5).

SOLID AREA DENSITY (SAD) SPECIFICATION

NOTE: All three density targets on the Test Print must be within 1.0 to 1.3.



829300 (S/N 49581)
OUTPUT REFERENCE
UV05-002

LINES

WHITE LINES

White vertical lines are deletions.

- o Clean the Bias Bar and Scorotron Assy.

BLACK LINES

1. Remove the Scorotron Assembly.
2. Rotate the Mag Brush Knob and check the Drum surface for scratches. If scratches are present, check for a cause before replacing the Drum:
 - o Remove the Drum (3-16).
 - o Rotate or replace the Doctor Blade (3-22).
 - o Check for foreign objects in the Cleaner Assembly or Developer Seal.
 - o Replace the Lower Seal on the Cleaner Assembly if bent or damaged.

NOTE Be sure to apply Zinc Stearate to new Drum and Doctor Blade.

Vertical Lines in Print Mode Only

1. Remove and clean the ROS Window. Check for small lint fibers inside and out of the ROS Window opening.
2. Ensure that the Mag Brush Cover is properly seated.

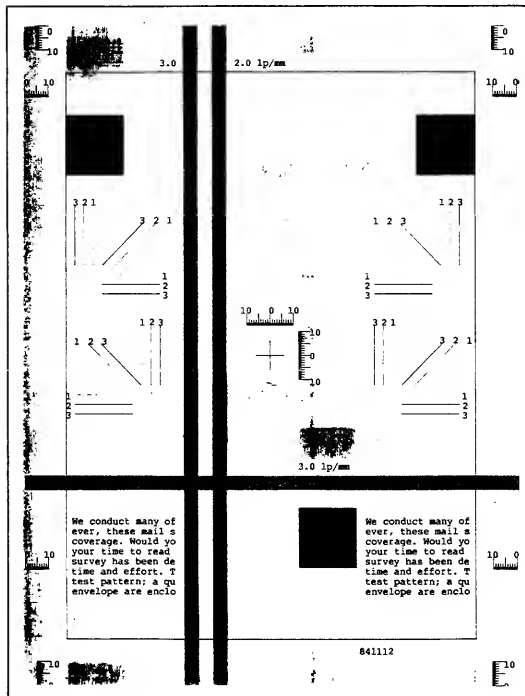
Vertical Lines in Copy Mode Only.

1. Clean and check Platen and CVT Optics.

RESIDUAL IMAGE

The image staying on the Drum after incomplete or improper cleaning.

- o Go to Drum Cleaning Procedure (3-3).

**SCORCHING**

Scorched paper problems usually are a result of paper handling problems.

1. Ask Operator if Paper Handling Status Codes have occurred. Refer to the appropriate Paper Handling Checklist before performing this Checklist.
2. The use of paper less than 16 pound (US), 65/70 gsm (RX), weight or paper with excessive curl, may increase the occurrence of scorched copies.
 - o Advise the Operator if required.
3. Check that the Blower Motor runs at normal speed in standby and at fast speed during a print cycle.
 - o If not, go to Blower Motor RAP (2-24).
4. Check that Fuser Heater Rod is positioned toward the top of the Reflector Housing (away from the Quartz Shield).
5. Remove the Fuser and check the condition of the Fuser Ventilation Seal below the Blower Motor.
 - o Replace the Seal if it is damaged.
6. Check/adjust Fuser Power (3-49).

SKEW

An image defect caused by the paper going through the Printer at an angle.

1. If A4 paper is used, ensure that the front Segment Roll is in the rear position (hole) on the Segment Roller Shaft.

If 8.5" wide paper is used, the Front Segment Roll should be in the outer hole.

2. Check the following paper feed areas for causes of skew:

- o Paper Tray
 - Paper is under snubbers
 - Condition of snubbers (burrs)
 - Check for damage
- o Retard Pads: Clean or replace
- o Segment Rolls: Clean or replace
- o Register Roll: Clean

3. Check that the ROS is seated properly.

Skewed Copies (Document skew in CVT)

1. Check size, weight and condition of original; instruct operator if necessary.
2. Clean the CVT drive rollers, idler rollers and upper baffle. (3-1)
3. Check that the baffle is not deformed and that the idler rollers rotate freely.
4. Adjust the green Document Guide on the Top Cover.
5. Replace the leaf (pressure) springs inside the CVT top cover. (4-7)

BEAD CARRY-OVER

1. Ensure that Scorotron Screen Voltage terminal is contacting the Scorotron Shield.
2. Check for Screen voltage of between 800 and 840VDC (3-44).
3. Remove Drum and clean any excess Developer Beads off the Magnetic Seal, below the Mag Roll.

SKIPS (COPIES ONLY)

A light image area defect caused by a difference in speed between the projected (CVT) image and the drum surface (Figure 2-4).

1. Rotate the Mag Roll Knob and check the CVT drive gears, pulleys and timing belt for smooth operation.
2. Check document path through the CVT.
 - o Drive Rollers
 - o Idler Rollers
 - o Upper and Lower Baffles

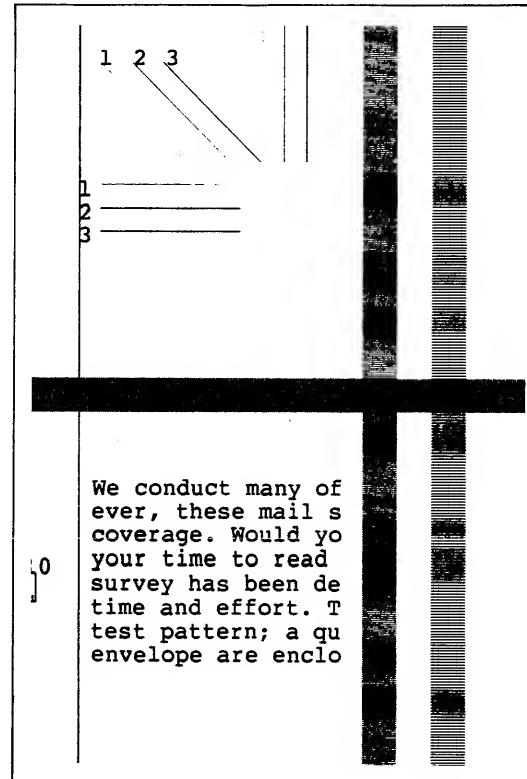


Figure 2-4. Skip/Smear Sample

SMEARS

An image defect caused by a difference in speed between the drum surface and the paper. See Figure 2-4.

1. Inspect all gears, pulleys and timing belt on the front of the Printer for worn or missing teeth, proper mesh and tension.
2. Ensure that the Register Roll is turning freely.
3. Ensure that the Fuser Feed-In Baffle and Fuser assembly are seated properly.
4. Ensure that there are no obstructions in the paper path.
5. Adjust the backlash of the Exit Roll Drive Gear (3-56).

SMUDGE

Movement of toner from an image area to a non-image area. See Figure 2-5.

1. Open the printer and check for any toner contamination in the paper path. Clean baffles and rollers with film remover.
2. Remove the Fuser Assembly and check for contamination of the Upper Reflector. Clean as per the Extended Maintenance Procedure (3-8).
3. Perform Fuser Alignment (3-48).
4. Perform Electrostatic Series (3-43).

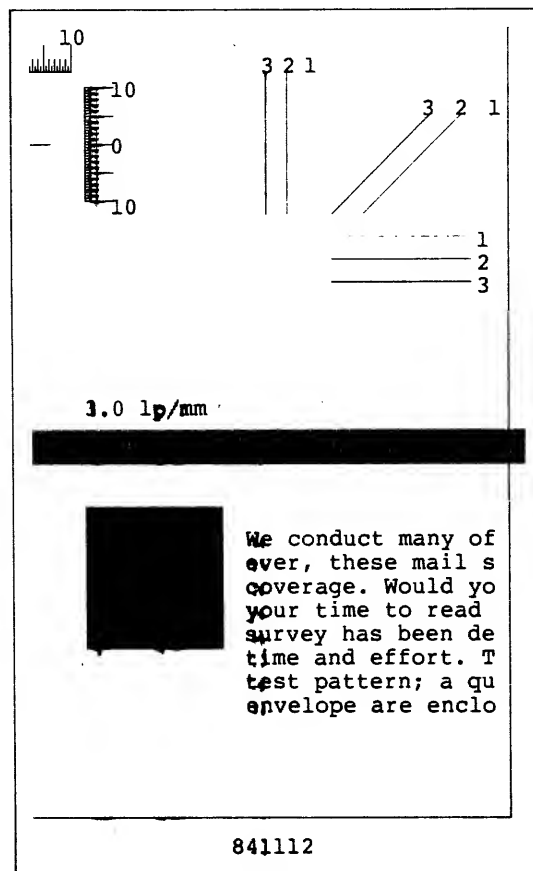


Figure 2-5. Smudge Sample

SPOTS/MARKS

Spots or marks that repeat on every print or copy, but move 4 inches (10cm) from one page to the next, are caused by a Drum defect.

- o Remove and inspect the Drum (3-16). Replace the Drum if damaged.

Random Spots or Marks

1. Clean the Upper Registration Roller.
2. Enter code 30, press OFF-LINE and check that the Cleaning Auger rotates. Go to Cleaning Augers RAP (2-49) if it does not rotate smoothly.
3. Check that Toner Sump is not full.
4. Remove Drum (3-16) and check condition of Lower Seal (3-23). Ensure that the Seal is not deformed or nicked. Replace Seal if damaged.
5. Clean toner off of the Trim Lip below the Mag Brush.

STREAKS

Streaks are Drum cleaning defects that appear as background that runs from lead to trail edge.

1. Go to Background Problem checklist (2-4).

UNEVEN DENSITY

The variation between the upper SAD targets on the Print Test Pattern is greater than .3.

If image density or solid area density is uneven from SIDE-TO-SIDE, the printer may not be level.

- o Refer to the installation procedure (5-4) and check machine level.

Also, the printer may have been opened numerous times causing the developer to flow toward the rear of the drum module. Run diagnostic code 30 to spread the developer inside the housing.

1. Check for Drum filming by entering Code 76 and running four Dark Dustings. Check for an area of lighter intensity that repeats from print to print in different places on each print. If pattern exists, perform the following:
 - o Remove Drum (3-16).
 - o Clean Drum surface (3-3).
 - o If filming cannot be removed, replace the Drum (3-16).
2. Clean the Corotrons and Scorotron with Film Remover (US), Step 2 Wash (RX).
3. For other uneven density symptoms go to the Light Image Problem Checklist (2-7).

UNFUSED PRINTS/COPIES

Toner image can be wiped off paper.

Heater Rod lights when printer is operating.

YES	NO
	Go to Fuser RAP (2-58).

- o Clean Fuser Assembly (3-8).
- o Check/adjust Fuser Power (3-49).
- o If toner is still not fusing properly, check SAD and adjust ADC if necessary. (3-46).

WAVY CHARACTERS - A ROS related imaging problem

Wavy characters or images toward the right side of a printed page are caused by Polygon Motor speed fluctuations.

Replace the following in the order listed:

- o Polygon Motor
- o ROS PWB
- o IOTC PWB

CHARACTER DEFECTS (In Print Mode only)

Missing, repeating or scrambled characters (wrong characters selected), may be caused by:

- o The ESS (4045 or XP-10E Models).
- o The C-Video PWB (for XP-10C).
- o The Host Computer or Interface Cable.

Question the operator(s) about the Host System:

- o Have they changed the Operating System software or any Applications software when the problem started.

If so, the printer and/or their Host configuration selections should be checked.

- o Generate a Soft Reset (hold RESET and push OFF-LINE) to create a Configuration Sheet.
- o Ask operator to check the host configuration.

If problem is not resolved, verify the Printer by running the Parallel or Serial Interface Test (5-9).

If the Interface Test is good, call for assistance.

If there are **Extraneous Markings or Vertical Lines**, the ESS (4045) or C-Video PWB (XP-10C) is probably at fault.

Also, try replacing the Resident Font EPROMs, Font Cartridges (4045 only) or have the Customer download different Font Data from the Host

4045 ONLY

Print the Configuration Sheet to determine if the problem is in the MPU/IG or the IOTC/ROS. (The horizontal lines at the top of the Configuration Sheet are generated by the IOTC; the remainder of the page is generated by the ESS).

- o Generate a Soft Reset to produce a Configuration Sheet.
- o If the defect is over the entire page, the problem is in the ROS or the IOTC. Replace the ROS PWB first, then the IOTC PWB.
- o If the defect is not present on the top (horizontal line area) of the page, replace the following in the order listed.
 - o Font EPROMs U8 and U20.
 - o MPU/IG

See Figures 2-6 and 2-7 for Character Defect Samples.

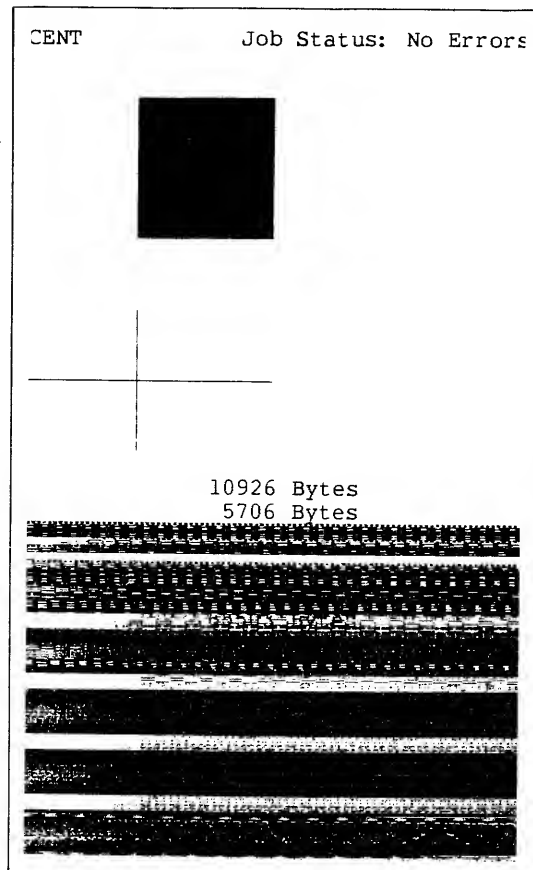


Figure 2-6. Extraneous Marks Sample

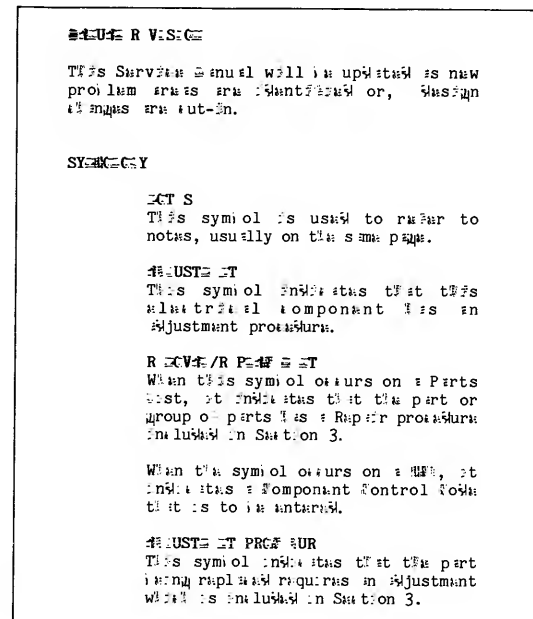
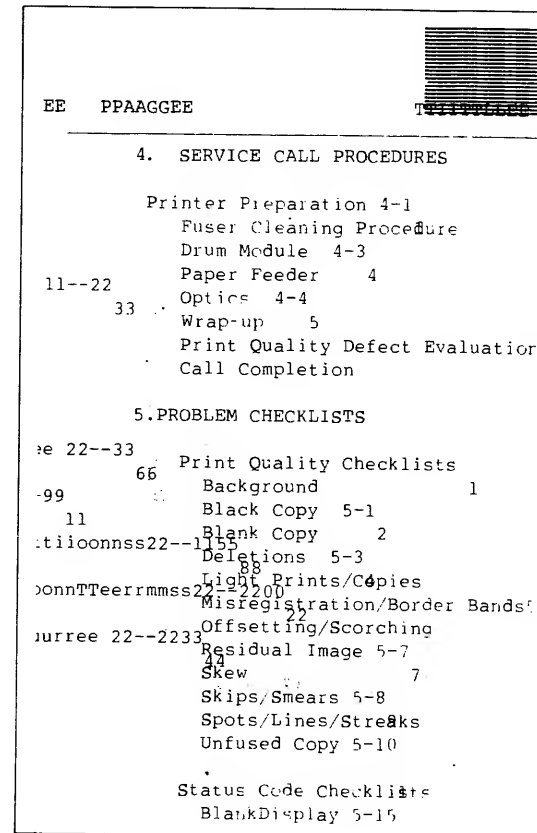


Figure 2-7. Garbled Print Sample



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POWER ON DIAGNOSTIC CHECKLISTS

These checklists provide corrective actions for a Power On Diagnostic Failure. Perform each item and then check the results by switching power ON again. Call for assistance after you have tried the entire Checklist and not corrected the problem.

- o Before starting, ensure that all PWBs and connectors are properly seated.

4045 AND XP-10E PRINTERS ONLY

d9 Code - ESS Loopback Failure

- o Remove and reinstall the ESS EPROMs (U1 and U31).
- o Remove and reconnect the IOTC-ESS ribbon cable.
- o Check that +5VDC and +12VDC are within tolerance. Refer to BCD1.4 on page 2-29 and read the voltages at P1 of the MPU/IG PWBs.
- o Replace the ESS EPROMs U1 and U31.
- o Replace the IOTC-ESS ribbon cable.
- o Replace the MPU/IG.

d8 Code - ESS Processor Failure

- o Remove and reinstall the ESS EPROMs (U1 and U31).
- o Replace U1 and U31.
- o Replace the MPU/IG.

d7 Code - ESS Memory Failure

- o Replace the MPU/IG.

d6 Code - D-RAM Failure

- o Remove D-RAM PWB and switch power ON. If d6 appears, replace the MPU/IG. If Power On Diagnostics pass, replace the D-RAM PWB.

d5 Code - ESS Band Buffer Failure

- o Replace the MPU/IG.

P1 Code - ERR Failure

- o Refer to the Level 2 Entry Checklist for P1 on page 2-1.

XP-10C PRINTERS ONLY

d9 Code - C-Video Loopback Failure

- o Remove and reinstall the C-Video EPROM U7.
- o Remove and reconnect the IOTC-C-Video ribbon cable.
- o Check that +5VDC and +12VDC are within tolerance. Refer to BCD1.4 on page 2-29 and read the voltages at P1 of the C-Video PWB.
- o Replace the C-Video EPROM U7.
- o Replace the IOTC-C-Video ribbon cable.
- o Replace the C-Video PWB.

d8 Code - C-Video Processor Failure

- o Remove and reinstall the C-Video EPROM U7.
- o Replace the C-Video PWB.

MAIN POWER RAP

This RAP assumes that the Printer is dead. Nothing happens when power is switched ON.

Ensure that power cord is plugged in and voltage is available at wall outlet (5-3).

Check Fuses F2 and F3 on the LVPS.

Refer to BCD 1.1.

- o RX only: Check F3 in the power cord (UK only).
- o Check that all electrical connectors are properly seated.

115/220VAC is available between pins 5 and 2 of the Power On Switch (Figure 2-8).

YES	NO
	Replace Line Filter.

Switch power ON. 115/220VAC is available between pins 4 and 1 of the Power On Switch.

YES	NO
	Replace the Power On Switch.

Go to Low Voltage Power Distribution RAP (2-27).

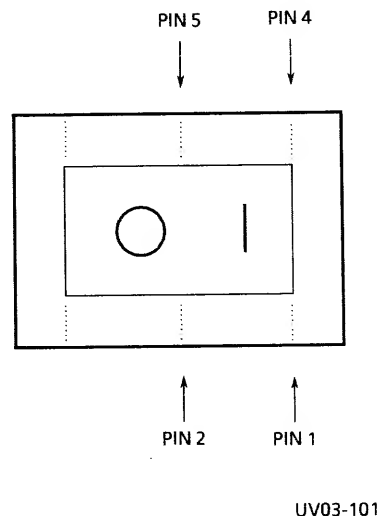


Figure 2-8. Power On Switch.
(Top view)

AC POWER RAP

This RAP assumes that there is Main Power to the Low Voltage Power Supply but there is no AC Power to the AC Driver PWB.

Switch power ON. The Main Power Relay energizes.

YES	NO
	Switch power OFF. Remove Main Power Relay. Refer to Figure 2-9 and place red DMM lead on terminal A and the black lead on B of the Relay socket. Switch power ON. The DMM reads +25VDC (+25VFWR).
	YES NO
	o Refer To BCD 1.1. Check for an open between K1 terminal A and P24 pin 7, and terminal B and pin 8.
	o Check for +25VFWR at P3-4 on the IOTC PWB.
	o Replace the IOTC PWB (3-27).
	Replace the Main Power Relay.

Switch power OFF and remove the Main Power Relay. Set DMM to appropriate VAC scale. Refer to Figure 2-9 and connect the black meter lead to terminal 8. Switch power ON and read the voltages at the Relay Socket terminals 7 and 9.

(Continued on next page)

(Continued from previous page)

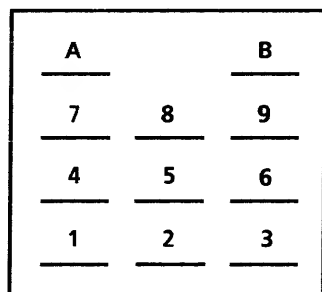
Socket voltages:

US ONLY: Terminals 7 and 9 read 115VAC.

RX ONLY: Terminals 7 and 9 read 220/240VAC.

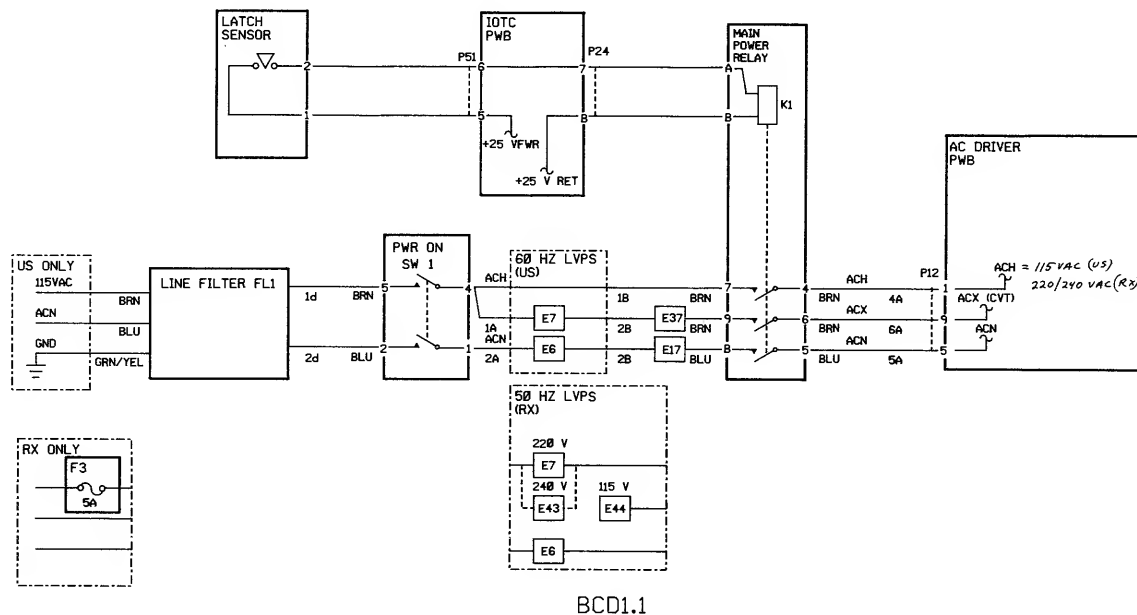
If voltages are good, check for open in wiring between P12 of the AC Driver PWB and the Relay Socket. Replace the Relay.

If voltage readings are incorrect, check wiring between the Relay Socket and the LVPS.



UV03-102

Figure 2-9. Main Power Relay Socket.
(Top View)



MAIN DRIVE MOTOR RAP

This RAP assumes that the Blower Motor is ON but the Main Drive Motor does not start at the completion of Power On diagnostics. The symptom will be an ADD PAPER (C4) indication.

- o Ensure that Main Drive Motor connector J14 is connected to P14.
- o Ensure that the connectors on the AC Driver PWB are seated properly.
- o Rotate the Mag Roll Knob to check for bound drive components.

Switch power OFF and remove the Fuser. Refer to BCD1.2 and check for an open Fuser Overheat Fuse F4. There is continuity between P20 pins 1 and 3.

- | | |
|-----|---|
| YES | NO |
| | |
| | o Replace Fuser Overheat Fuse (3-26). |
| | |
| | o Check condition of Fuser ventilation seal. Replace seal if damaged (4-2). |
| | |
| | o Check/adjust Fuser Power (3-49). |
| | |
| | o The Blower Motor runs at SLOW speed during standby and FAST speed during a print cycle. |
| | YES NO |
| | Go to Blower Motor RAP (2-24). |
| | |
| A | Repair analysis complete. |

- | | |
|-----|--|
| A | |
| | Switch Power ON. Refer to BCD 1.2. There is +25VDC (+25VFWR) at Test Point 10 on the AC Power Driver PWB. |
| YES | NO |
| | Check for +25VDC (+25VFWR) at P9-11. Voltage is available. |
| | YES NO |
| | Check for an open wire between P9-11 and P8-1. Replace the IOTC PWB (3-27). |
| | |
| | Replace the AC Power Driver PWB. |
| | |
| | Enter code 30 and press OFF-LINE. The voltage at TP 10 goes to less than 1.0V. |
| YES | NO |
| | Switch power OFF. Check for open between P8 pin 2 and P9 pin 10. If good, replace IOTC PWB (3-27). |
| | |
| | Switch power OFF. Disconnect P/J 14 and check continuity of Main Drive Motor. There is an open between pins 1 and 2 of P/J 14. |
| YES | NO |
| | Check for open between P10 and J14. If good, replace AC Driver PWB. |
| | |
| | Replace Main Drive Motor (3-17). |

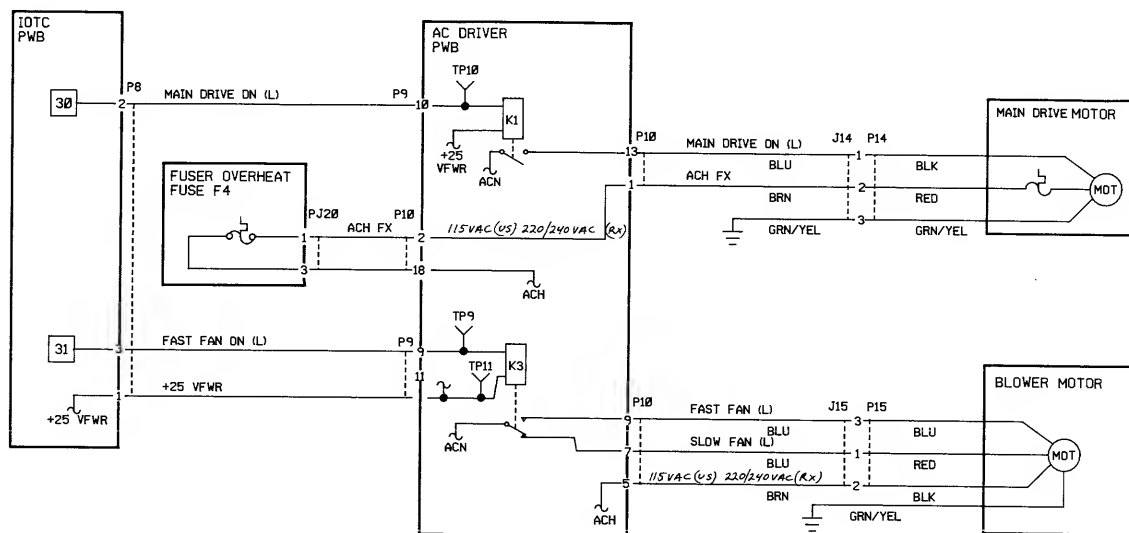
BLOWER MOTOR RAP

Switch power ON. The Blower Motor runs at SLOW speed.

- | | |
|-----|--|
| YES | NO |
| | Remove Side/Rear Cover. Refer to BCD 1.2. ACH is available at J15 pin 2. |
| | YES NO |
| | Check connection of P10 on the AC Driver PWB. Go to AC Power RAP. |
| | |
| | ACH is available at J15 pin 3. |
| | YES NO |
| | Replace the Blower Motor. |
| | |
| | Check for open between P10 pin 7 and J15 pin 3. Replace AC Driver PWB. |
| | |
| | Enter diagnostic code 31 and press OFF-LINE. The Blower runs at FAST speed. |
| YES | NO |
| | Press OFF-LINE. Refer to BCD 1.2. The voltage between TP 9 on the AC Driver PWB and GND is +25VDC (+25VFWR). |
| | YES NO |
| | |
| A | B C |

(continued on next page)

A	B	C
		Check for +25VDC (+25VFWR) at P9-11 on the AC Driver PWB. Voltage is available.
		YES NO
		Check for open wire between P9-11 and P8-1. Replace the IOTC (3-27).
		Replace the AC Driver PWB.
		Press OFF-LINE. The DC Voltage at TP 9 (FAST FAN ON (L)) is less than 1.0VDC.
		YES NO
		Check for open between P8 pin 3 (IOTC) and P9 pin 9 (AC Driver PWB). Replace the IOTC PWB (3-27).
		ACH is available at P15 pin 3. (P/J 15 is still connected, code 31 is enabled).
		YES NO
		Replace Blower Motor (3-28).
		Check for open between P10 pin 9 and J15 pin 3. Replace AC Driver PWB.
		Blower Motor is operating correctly.



E5 STATUS CODE RAP

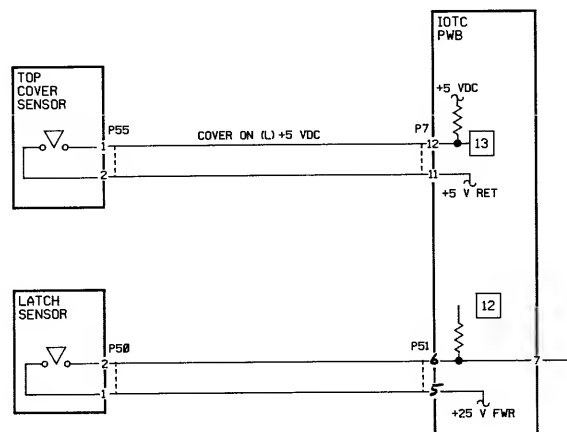
This RAP assumes that an E5 code is displayed continuously, indicating that the Printer is not latched.

- o Ensure that Latch Sensor magnet is mounted on the Latch Handle.
- o Refer to BCD 1.3. Ensure that P/J 50 and 51 are properly seated.

The Main Power Relay energizes when the Latch Handle is closed.

YES	NO
	Place the red DMM lead on P50 pin 1 and the black lead on P50 pin 2. DMM reads +25VDC (+25VFWR).
	YES NO
	o Check for open wire between P50 and P51.
	o Replace IOTC PWB (3-27).
	o Replace Latch Sensor.
	o Replace Latch Handle Magnet.

Replace IOTC PWB (3-27).



#L CODE RAP

NOTE: A #L Code indicates the Printer is in the Service Diagnostic Mode. # will be a number indicating the revision level of the IOTC software.

This RAP assumes that a #L code is displayed while the Top Cover is on the Printer.

- o Check that the Top Cover is properly installed.
- o Check that the Top Cover Magnet is in place.
- o Ensure that P/J 55 and P/J 7 are properly seated.

Enter code 13 and press OFF-LINE. Actuate the Top Cover Sensor with a magnet. Printer Beeps.

YES	NO
	Place Red DMM lead on P55-1 and Black DMM lead on P55-2. DMM should read +5VDC. The voltage is available.
	YES NO
	o Check for an open between P55 and P7.
	o Replace IOTC PWB (3-27).
	Replace the Top Cover Sensor.

Reinstall Top Cover.

LOW VOLTAGE POWER DISTRIBUTION RAP
(Includes +5 VDC, +12VDC, and -12VDC RAPs)

This RAP assumes that one or more voltages from the Low Voltage Power Supply (LVPS) are not available.

- o Ensure that Fuses F2 and F3 on the LVPS are good.
- o Remove the ROS and check that all low voltage power connectors (J1, J2, J3 and J4) on the MPU/IG, (C-Video) and IOTC PWBs are properly seated. Refer to page 2-73 for PWB connector locations.
- o Switch power ON. Refer to BCD 1.4 and measure the voltages at P3 and P4. Always connect the RED lead to the voltage pin and the BLACK lead to the RET pin.
- o If the PRINTER IS DEAD, (no sounds or display) switch power OFF and check continuity of the primary winding of the Low Voltage transformer (between E6 and E7 US or E6 and appropriate J7, J8, or J9 RX). If the primary winding is open replace the LVPS.
- o Perform the following +5VDC, +12VDC, or -12VDC RAP(s) for a voltage that is out of tolerance.

+5VDC RAP

This RAP assumes that +5VDC is not available and that Fuse F3 is good.

Refer to BCD 1.4. Switch power OFF and disconnect P1 from MPU/IG (or C-Video PWB). Switch power ON and check for +5VDC again at P1. Voltage is available.

YES	NO
	Replace the Low Voltage Power Supply.

The loading problem is caused by a shorted 5VDC component. Switch power OFF and reconnect P1. To determine which component is shorted, disconnect the following P/Js, one at a time, until the +5VDC is available at P1.

CONNECTOR - COMPONENT

- Configuration Cartridge
- Font Cartridges
- ERR PWB
- Host Interface PWB
- D-RAM PWB
- P39 - Control Panel
- P47 - Paper Tray Sensor #1
- P53 - Paper Tray Sensor #2
- P54 - Paper Tray Sensor #3
- P4 - IOTC PWB

If all the above components are disconnected and +5VDC is still not available, replace the Low Voltage Power supply. If you still have a problem, replace the MPU/IG.

+12VDC RAP

This RAP assumes that +12VDC is not available.

Refer to BCD 1.4. Switch power OFF and disconnect P1 from MPU/IG (or C-Video PWB). Switch power ON and check for +12VDC again at P1. Voltage is available.

YES	NO
	Replace the Low Voltage Power Supply.

The problem caused by a shorted +12VDC component. Switch power OFF and reconnect P1. To determine which component is shorted, disconnect the following P/J's, one at a time, until the +12VDC is available at P1.

CONNECTOR - COMPONENT

- Host Interface PWB

P38 - ROS PWB
(Remove the ROS Assembly)

P39 - Control Panel

P40 (on IOTC) - Toner Sensor

P36 (on IOTC) - Paper Path Sensors

P27 (on IOTC) - Home Position Sensor

P51 (on IOTC) - Tray Full Sensor
(optional)

(continued)

CONNECTOR - COMPONENT

P34 - Buzzer

P8 (on IOTC) - AC Driver PWB

P61 - Document Detect Sensor

P42 - Document Registration Sensor

If all the components above are disconnected and +12VDC is still not available, replace the MPU/IG (or C-Video) PWB.

-12VDC RAP

This RAP assumes that -12VDC is not available.

Refer to BCD 1.4. Switch power OFF and disconnect P1 from MPU/IG (or C-Video PWB). Switch power ON and check for -12VDC again at P1-8. Voltage is available.

YES	NO
	Replace the Low Voltage Power Supply.

The problem caused by a shorted -12VDC component. Switch power OFF and reconnect P1. To determine which component is shorted, disconnect the following P/J's, one at a time, until the -12VDC is available at P1.

CONNECTOR - COMPONENT

- Host Interface PWB

P38 - on ROS PWB

P9 - on AC Driver PWB

P4 - IOTC PWB

If all the above components are disconnected and -12VDC is still not available, replace the MPU/IG (or C-Video) PWB.



BLANK DISPLAY RAP

None of the indicator lights on the Control Panel illuminate when power is switched ON.

The Blower Motor and the Polygon Motor are BOTH operating. Feel the Blower Motor exhaust to be certain the blower is operating.

YES	NO
	BOTH motors do not operate.
	o Go to Main Power RAP (2-22).
	or ONLY the BLOWER operates.
	o Check Fuse F3 on the LVPS.
	o Go to Low Voltage Power Distribution RAP (2-27) and check +5 VDC RAP.
	or ONLY the POLYGON motor operates.
	o Check F2 on the LVPS.
	o If F2 is good, check that the Main Power Relay energizes when power is switched ON. The Relay energizes.
	YES NO
	Go to AC Power RAP (2-22).

Refer to BCD 2.0. Check connection of P39 and P25. Place red DMM lead on P39 pin 2 and black lead to GND. DMM reads +12VDC.

YES	NO
	o Check for open between P39 and P25.
	o Go to Low Voltage Power Distribution RAP (2-27).

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Replace IOTC EPROM.
Replace IOTC PWB.
Replace Control Panel.

IMPROPER DISPLAY

The printer is operational but the Control Panel Indicators are not functioning properly.

Enter diagnostic code 10 and press OFF-LINE. All indicators should be ON. Any indicators or numerical segments can be checked as follows:

Refer to BCD 2.0. With diagnostic 10 enabled, check for a logic "low" (less than 1.0VDC) at the appropriate signal pin on P39. Voltage is low.

YES	NO
	Voltage is "high", (greater than 1.0VDC), check continuity of wire between P39 and P25.
	Replace IOTC PWB (3-27).

Replace Control Panel

BUZZER RAP

The Buzzer will beep (chime) when a paper jam occurs if the configuration switch B:6 is ON.

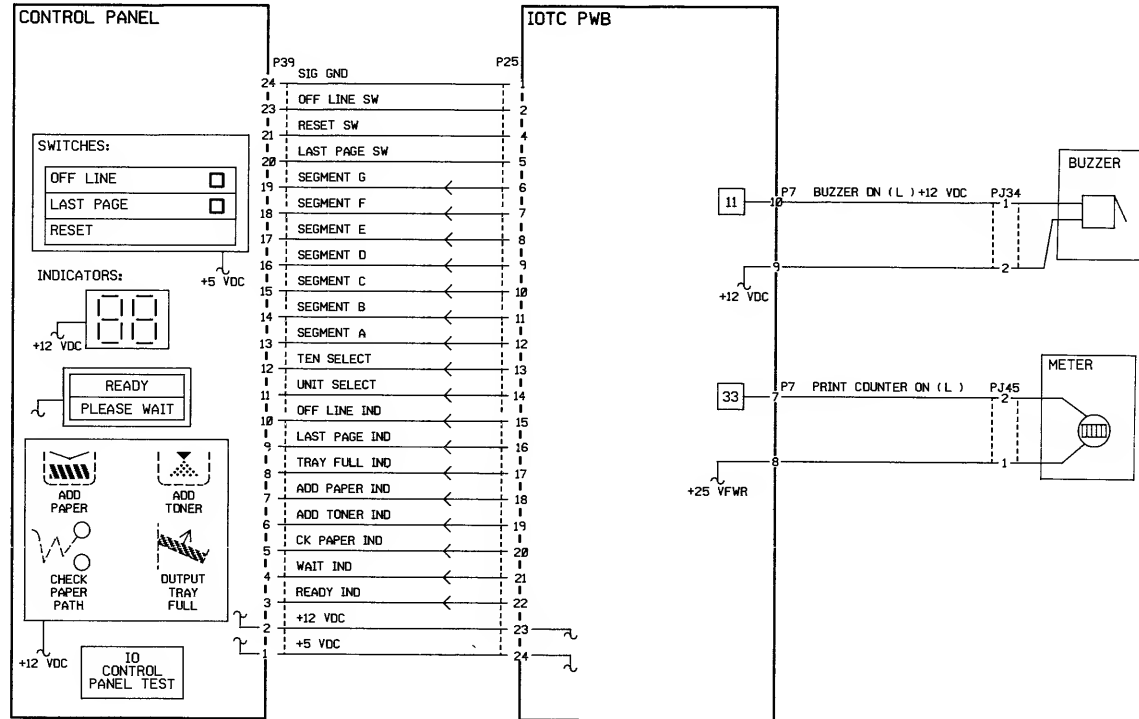
Refer to BCD 2.0. Disconnect PJ 34 and check continuity of Buzzer. The Buzzer beeps when the DMM probes contact pins 1 and 2.

YES	NO
	Replace the Buzzer (4-12).

Check continuity of wires between P7 and P34. Replace the IOTC PWB (3-27).

BILLING METER RAP

Enabling diagnostic code 33 should cause the Meter to increment by one. If Meter does not increment, check continuity of wires between P7 and P45. If wires are good, replace the Meter (4-12), then the IOTC PWB (3-27).



BCD2.0

A1 STATUS CODE RAP

Use this RAP for Document Jams in the CVT.

- o Check for binding or broken Sensor Actuators.
- o Check document. Longer than 14inch (35 cm) will cause A1 jams.

Raise the CVT Cover and actuate the Document Detect Sensor. Enter code 20* and press OFF-LINE. The CVT Clutch energizes.

YES NO

| Go to the CVT Clutch RAP (2-32).

The document Input Drive Roller rotates.

YES NO

- | o Check that clutch is pinned to shaft.
- | o Check for proper gear mesh.
- | o Check Drive Belt.
- | o Remove CVT clutch and clean the clutch surfaces (3-30).
- | o Replace the Clutch if it continues to slip (3-30).

Close CVT Cover, insert a document into the CVT and repeat test 20*. Document feeds correctly through the CVT.

YES NO

- | o Check for an obstruction in the Document Path.
- | o Clean Upper and Lower CVT Baffles.
- | o Replace Upper Idler Roller Springs.

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A1 Status Code appears.

YES NO

| CVT is functioning properly. Question Key operator about the use of the CVT and types of originals.

|

- o Check for sticking Sensor Actuators.
- o Go to Document Registration Sensor RAP. (2-32).

CVT CLUTCH RAP

Refer to BCD 5.0. Place red DMM lead on P31-2 and the black DMM lead to GND. DMM reads +25VDC (+25VFWR).

YES NO

- | Move red lead to P31-1. DMM reads +25VDC.
- | YES NO
- | o Check for an open between P23 and J31.
- | o Replace IOTC PWB (3-27).

|

Replace the CVT Clutch (3-30).

Enter code 51 and press OFF-LINE. Voltage at P31-2 goes low (less than +5VDC).

YES NO

- | o Check for open wire between P23 and J31.
- | o Replace the IOTC PWB (3-27).

|

CVT Clutch should be energized. Check for a mechanical failure or contaminated Clutch.

DOCUMENT REGISTRATION SENSOR RAP

Refer to BCD 5.0 and ensure that PJ 42 and PJ 23 are seated properly.

Enter Code 52 and press OFF-LINE. Actuate the Document Registration Sensor. The Printer beeps.

YES NO

| Disconnect the Document Detect Sensor PJ 61. Connect P61 into J42. Enter code 50 and actuate the Registration Sensor again. The printer beeps.

| YES NO

| Replace Document Registration Sensor (3-32).

|

- | o Check for open wires between J42 and the IOTC PWB.
- | o Replace the IOTC PWB (3-27).

|

Sensor is operating correctly. Check wiring for an intermittent open.

DOCUMENT DETECT SENSOR RAP

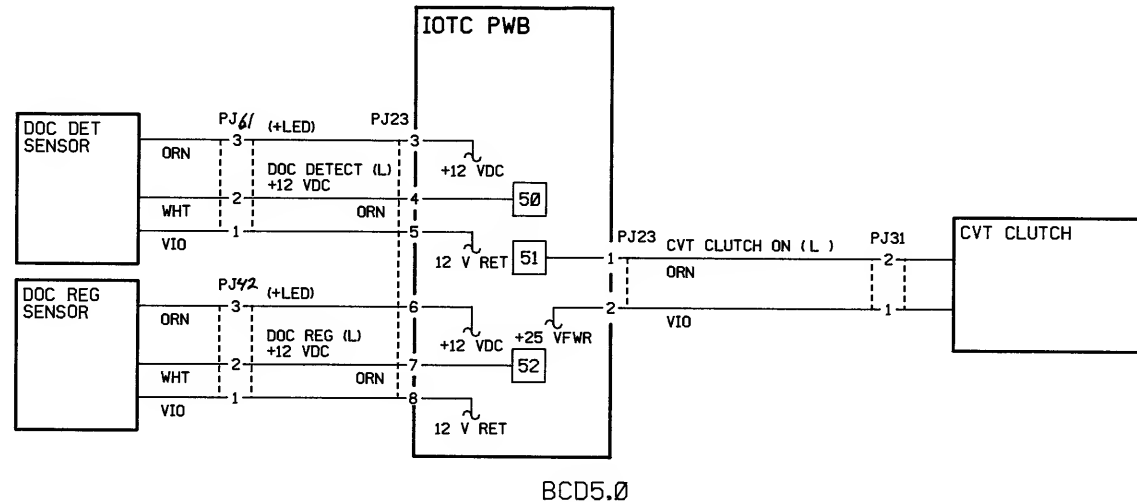
A failed Document Detect Sensor will cause the Printer to not "start copying" when an original is inserted.

Refer to BCD 5.0 and ensure that PJ 61 and PJ 23 are seated properly.

Enter Code 50 and press OFF-LINE. Actuate the Document Detect Sensor. The Printer beeps.

- | | |
|-----|---|
| YES | NO |
| | Disconnect the Document Registration Sensor PJ42. Connect P42 into J61. |
| | Enter code 52 and actuate the Detect Sensor again. The printer beeps. |
| | YES NO |
| | Replace Document Detect Sensor. |
| | |
| | o Check for open wires between J61 and the IOTC PWB. |
| | o Replace the IOTC PWB (3-27). |

Sensor is operating correctly. Check wiring for an intermittent open.



EXPOSURE LAMP RAP

This RAP assumes that there are Black Copies.

Switch power OFF.

Refer to BCD 6.0. Disconnect PJ49 and PJ13 and check for an open between the Exposure Lamp and the Overheat fuse. There is continuity between J49 and J13.

YES NO

| Disconnect PJ 56 and check for an open
| in either component (lamp or fuse).
| Replace the failed component (3-31).

Switch power ON. Enter Code 32. The K4 relay on the A/C Driver PWB clicks when OFF-LINE is pressed.

YES NO

| Press OFF-LINE again to deactivate code
| 32. Place red DMM lead on P9-7 and the
| black DMM lead to GND. DMM reads
| +25VDC (+25VFWR).

| YES NO

| | Check for +25VDC (+25VFWR) at
| | P9-11. Voltage is available.

| | YES NO

| | | Check for open between
| | | P9-11 and P8-1.
| | | Replace IOTC PWB (3-27).

| | YES NO

| | | Replace the AC Driver PWB.

A B

A B

| |

| | Check for open between P8-5 and P9-7.

| | Replace IOTC PWB (3-27).

| |

Connect red probe to PJ49 and the black probe to GND. Check for ACX voltage (115VAC US, 220/240VAC RX). ACX is available.

YES NO

| o Check for open between P11-8 and P49-1.

| o Refer to BCD1.1 on page 2-23 and check
| for ACX at the AC Driver PWB.

| |

Switch power OFF and remove ROS.

Disconnect P11 from AC Driver PWB.

Set DMM on 2K OHMS scale. Connect RED lead to J11-5 and BLACK lead to J11-4 on the AC Driver PWB. DMM reads 1K Ohms.

YES NO

| Replace AC Driver PWB (4-12).

| |

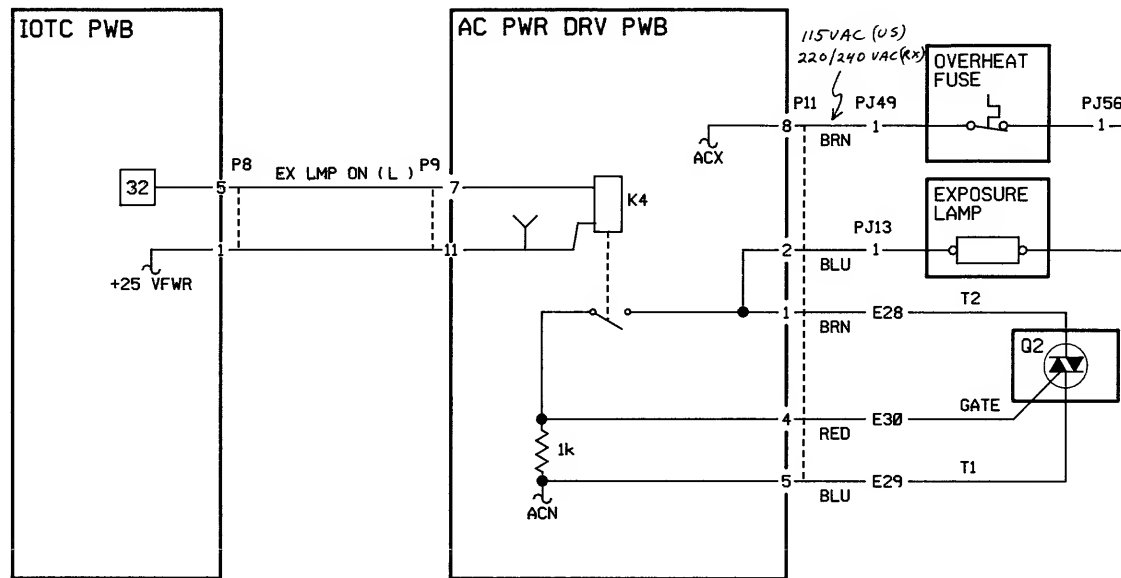
Move RED lead to J11-1. Switch power ON, enter code 32 and press OFF-LINE. DMM reads 0 Ohms when K4 is energized.

YES NO

| Replace AC Driver PWB (4-12).

| |

Replace Exposure Lamp Triac Q2 (4-12).



BCD6.0

DANGER
LASER INVISIBLE RADIATION
When cover removed and
interlock defeated (power
cord plugged in) avoid direct
exposure to the beam.

L2 STATUS CODE RAP

An L2 code indicates that the ROS PWB has failed to detect a Start of Scan (SOS) Signal.

- o Ensure that all the ROS PWB connectors are properly seated.

Switch printer power ON. Polygon Motor is running.

YES NO
| Go to Polygon Motor RAP (2-38).

Enter code 28* and press OFF-LINE. The lined test pattern is printed.

YES NO
| The LED (CR13) on the ROS PWB is lit while 28* is running.
| YES NO
| | Go to A.
| Replace the Laser Diode.

If ROS Window has been removed, ensure that the "first surface" of the SOS Mirror is facing the SOS Sensor inside the ROS Housing, (refer to illustration on page 3-35).

- o Replace the ROS PWB (3-34).
- o Replace the IOTC PWB (3-27).

A
|
Refer to BCD6.1 and check for the following voltages on the ROS PWB:

RED LEAD	BLACK LEAD	VOLTAGE
TP2	TP1	+5.0+0.2VDC
TP3	TP1	+12.0+0.6VDC
TP4	TP1	-12.0+0.6VDC

The voltages are present.

YES NO
| Disconnect P38 and check the voltages at the plug (pins 3, 7 and 5).
| Voltages are good.
| YES NO
| | Check for open wires between P19 and P38. Go to Low Voltage Power RAP (2-27).
| |
| Replace ROS PWB (3-34).

Replace the ROS PWB (3-34).

L3 STATUS CODE RAP

An L3 code indicates that the Laser Beam will not go ON.

Enter code 28* and press OFF-LINE. The LED (C13) on the ROS PWB is lit.

YES NO
| Replace the IOTC PWB (3-27).
| Replace the ROS PWB (3-34).

The lined test pattern is printed correctly.
YES NO
| Test print is Black. Replace the IOTC PWB (3-27).

Check for intermittent connection on ROS wiring.

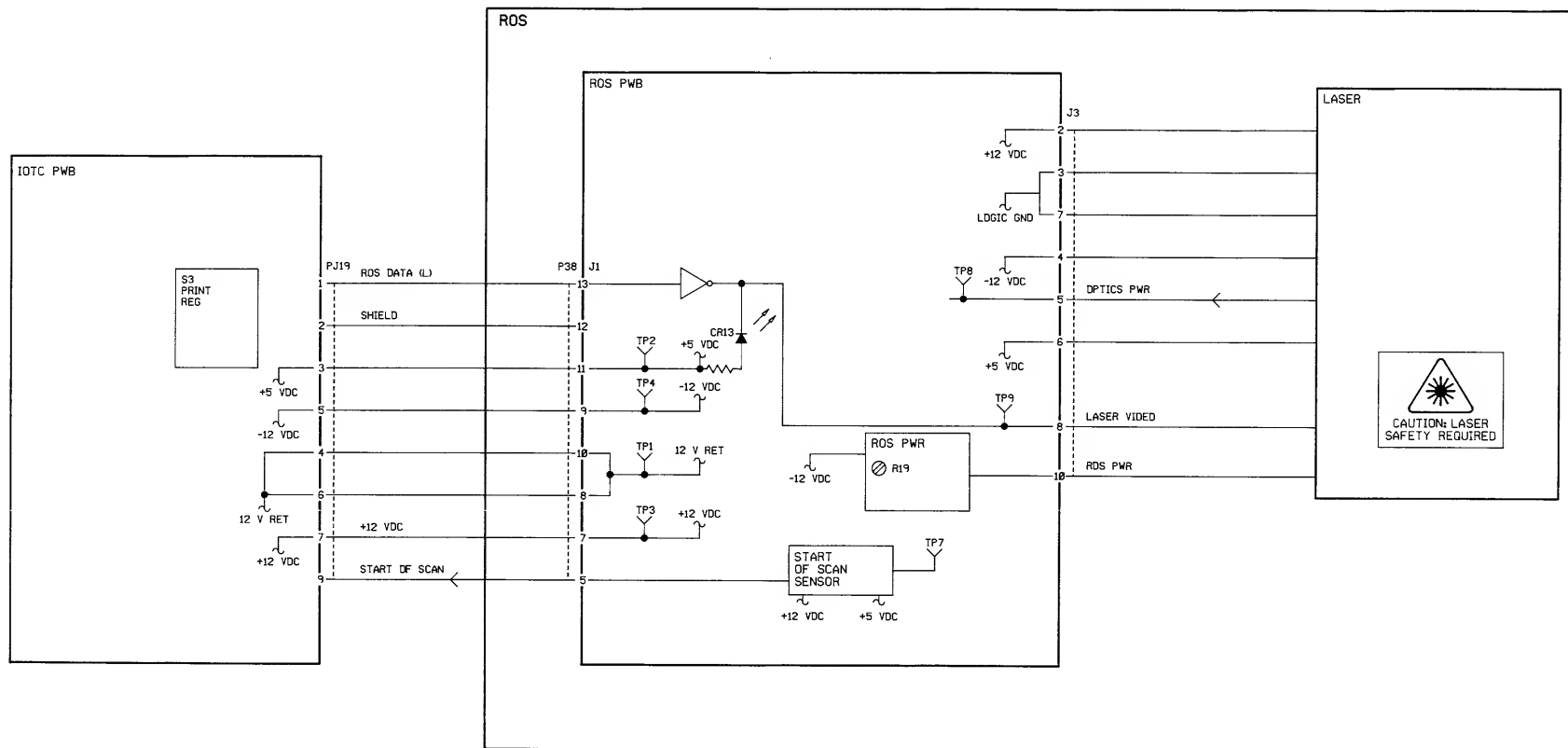
L5 STATUS CODE RAP

An L5 code indicates that the Laser Beam fails to go OFF.

- o Replace the IOTC PWB (3-27).
- o Replace the ROS PWB (3-34).

DANGER
LASER INVISIBLE RADIATION
When cover removed and interlock defeated (power cord plugged in) avoid direct exposure to the beam.

REPAIR ANALYSIS PROCEDURES L2 STATUS



BCD6.1

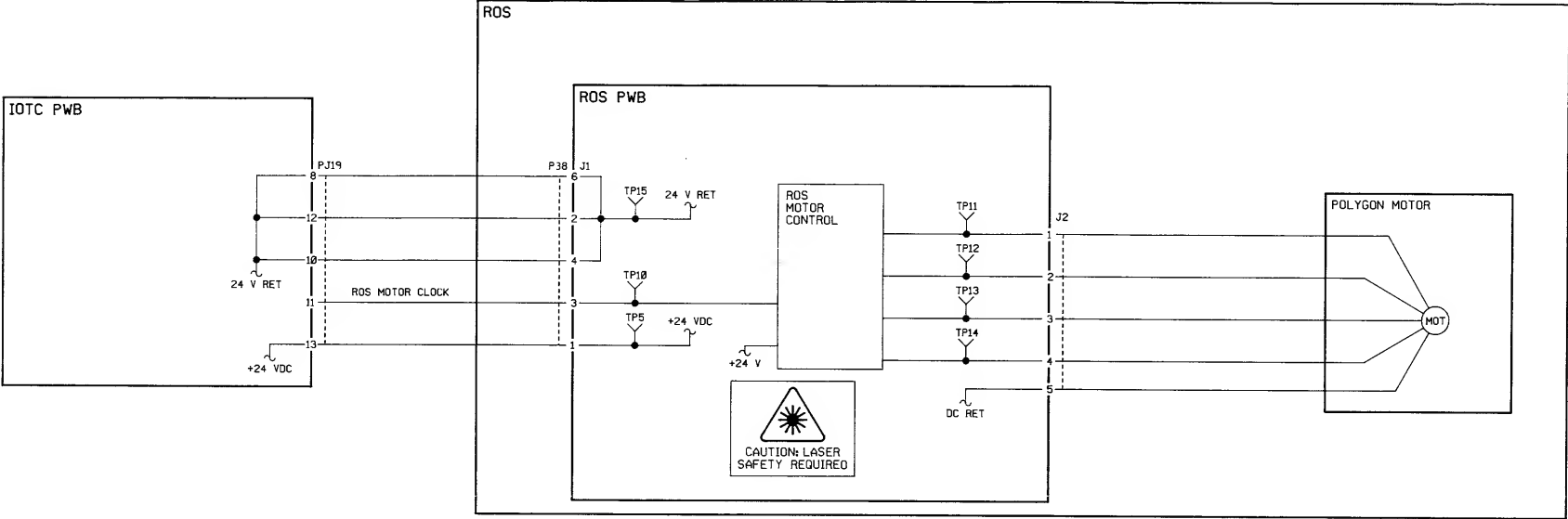
This RAP assumes that the Polygon Motor is not spinning.

```
YES      NO
|        |
| Refer to BCD 6.2. Check for 24VDC
| between TP15 and TP5. Voltage is
| available.
| YES     NO
|         |
|         | Disconnect P38 and check for
|         | voltage at pins 1 and 2.
|         | Voltage is available.
|         | YES    NO
|         |       |
|         |       | o Check for open wire
|         |       | between P19 and P38.
|         |       | o Go to Low Voltage Power
|         |       | RAP (2-27).
|         |_____|
| o Replace the Polygon Motor (3-34)
| o Replace the ROS PWB (3-34)
| o Replace IOTC PWB (3-27).
```

2-38

DANGER
LASER INVISIBLE RADIATION
When cover removed and
interlock defeated (power
cord plugged in) avoid direct
exposure to the beam.

REPAIR ANALYSIS PROCEDURES
L2 STATUS



BCD6.2

C3 STATUS CODE

A C3 code indicates that the Paper Tray is not being sensed by the IOTC PWB.

- o Perform the following Paper Tray Sensor Checkout.

The 4045 is capable of printing on five different paper sizes and two types of envelopes. The IOTC receives inputs from the three magnetic tray sensors to determine which type of paper is loaded in the trays. This allows the IOTC to select the proper feed timing and jam detection for the paper in use.

A Tray with missing magnet(s) or a failed sensor can cause false E2 jams or a "Tray Removed" (C3) condition.

To determine which Tray Sensor(s) is causing a problem:

- a. Locate the paper size in use, from the following chart.
- b. Determine which Sensor(s) should be actuated (X) by the Tray Magnet(s). Refer to Figure 2-10 to locate Sensor.
- c. Ensure that the Magnet(s) are present on the Tray.
- d. Perform Tray sensor RAP.

PAPER TRAY SENSING CHART

<u>SIZE</u>	<u>SENSOR</u>		
	<u>S1</u>	<u>S2</u>	<u>S3</u>
None (Tray removed)	0	0	0
8.5 X 11 inch	X	0	0
8.5 X 14 inch	X	X	0
A4 (210 X 297 mm)	0	X	0
215 X 330 mm	0	0	X
215 X 356 mm	0	X	X
US Envelope	X	0	X
RX Envelope	X	X	X
DIAGNOSTIC INPUT CODE	84	85	86

TRAY SENSOR RAP

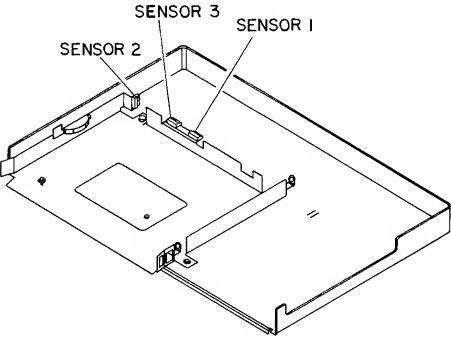
Use this RAP to check out any of the three Tray Sensors.

- o Locate Sensor to be checked from Figure 2-10.
- o Refer to BCD 7.0. Enter component input code 84, 85 or 86 (for the appropriate Sensor) and press OFF-LINE.

Ensure that Backstop is in the correct position to actuate the Sensor. Slide the Tray into the Printer. The Tray Magnet causes the Printer to beep.

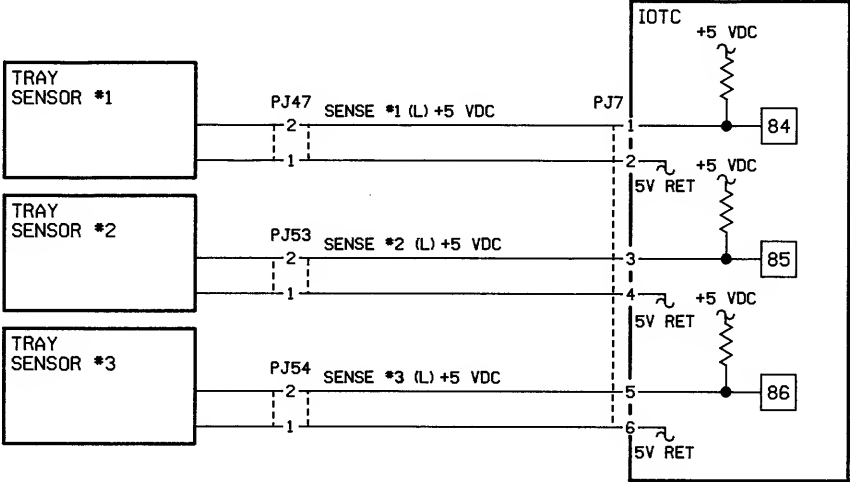
YES	NO
	Disconnect the Sensor P/J. Check for
	+5VDC between Pins 2 and 1 of the
	Sensor Jack (J47, J53 or J54). Voltage
	is available.
	YES NO
	o Check for open wires between
	the Sensor and P/J7 on the
	IOTC.
	o Replace IOTC PWB (3-27).
	o Replace the Sensor.
	o Replace the Tray Magnet.

Sensor is functioning properly. If false E2 jams or C3 codes continue, replace the IOTC PWB (3-27).



UV03-703

Figure 2-10. Tray Sensors



BCD7.0

C4/E1 STATUS CODE RAP

A C4 fault is caused when paper fails to reach the Registration Sensor.

A E1 code is displayed when paper arrives late at the Registration Sensor.

Switch power ON. The Blower Motor is running.

YES NO
| Go to AC Power RAP (2-22).
|

Enter diagnostic code 30 and press OFF-LINE. The Drum Pulley is rotating.

YES NO
| Go to Main Drive Motor RAP (2-24)
|

The Mag Brush Knob is rotating.

YES NO
| o Slide out the Drum Module (3-15) and
| check the drive gears at the rear of
| the Drum Module.
|
| o Rotate the Mag Roll Knob and check that
| the Main Drive Motor rotates. If Motor
| does not rotate, remove the Main Drive
| Motor (3-17) and replace the motor
| drive shaft gear.
|

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Press OFF-LINE. Enter code 26* and press OFF-LINE again. The Segment Roll Shaft rotates completely at the start of print cycle.

YES NO
| Segment Roll Shaft rotates partially.
| YES NO
| | Slide out the Drum Module (3-15)
| | and check the Feed Clutch Pulley
| | and belt.
| |
| | Go to Paper Feed Clutch RAP (2-46).
| |
| Remove Clutch and clean surface with
| Film Remover (US), Step 2 Wash (RX).
|

Paper is actuating the Registration Sensor.

YES NO
| o Clean the Segment Rollers with film
| remover.
|
| o Ensure that the Segment Rollers are
| installed correctly (3-20).
|
| o Add new paper to Paper Tray.
|
| o Check the condition of Paper Tray and
| snubbers.
|

Registration Sensor is not sending a signal to the IOTC. Check that the Registration Sensor Actuator is not binding. Go to Registration Sensor RAP (2-44).

C1 STATUS CODE

A C1 code is displayed if the Feed Rolls are not in Home Position at the completion of a print run or paper jam.

- o Perform the Home Position Sensor RAP below.

HOME POSITION SENSOR RAP

- o Refer to BCD 8.0 and check that P/J's 26, 27 and 46 are properly seated.

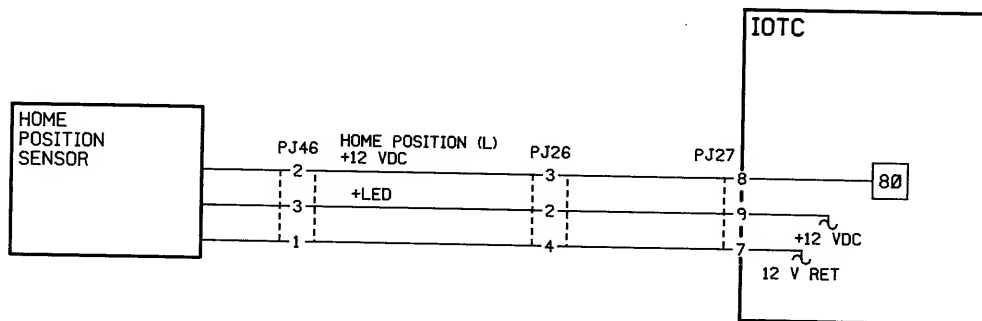
Enter diagnostic code 80 and press OFF-LINE. Open the printer and rotate the Segment Rolls. The printer "beeps" when the Rolls move to home position.

YES NO
 | Refer to BCD 8.0. Disconnect P26 and
 | check for +12VDC at J26 pin 2 and pin
 | 3. Voltage is available.
 | YES NO
 | | Check for open wires between
 | | P27 and J26.
 | |
 | Reconnect P26 and place red probe on
 | pin 3. Rotate the segment rolls. The
 | voltage at pin 3 drops to less than
 | 2VDC when home position is sensed.
 | YES NO
 | | Replace the Home Position
 | | Sensor.

A

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 | |
 | o Check for open wire between P26-3 and
 | P27-8.
 | o Replace IOTC PWB (3-27).
 |
 Go to C4 Status Code RAP (2-42).
 BCD 8.0



BCD8.0

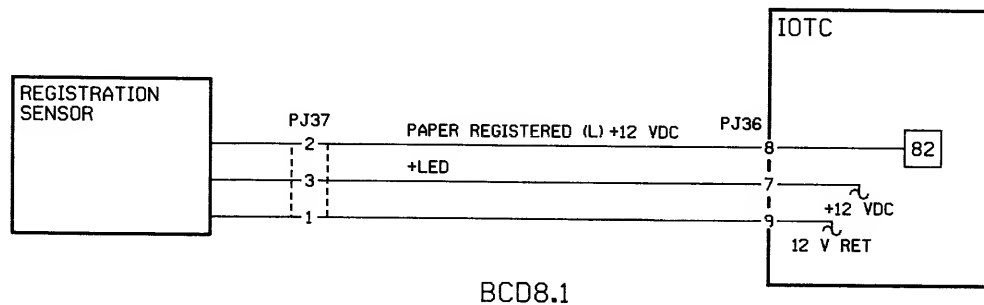
E2 STATUS CODE RAP

An E2 code indicates that the paper failed to leave the Registration Sensor.

E2 jams occur only when using long paper.

- YES NO
- | o Check that the Actuator for the Registration Sensor moves freely.
 - | o Check for an obstruction in the paper path and Fuser.
 - | o Check that the Lower Registration Rollers rotate freely.

Go to the Tray Sensor RAP (2-40).



REGISTRATION SENSOR RAP

This RAP assumes that paper is fed past the Sensor Actuator and the Actuator is moving freely.

- o Refer to BCD 8.1. Ensure that P/J 36 and P/J 37 are seated properly.

Enter Diagnostic code 82 and press OFF-LINE. Open Printer and actuate the Registration Sensor. The printer Beeps.

- YES NO
- | Check for +12VDC (+LED) between P37-3 and GND.
 - | YES NO
 - | | Check for open wire between J37 and P36. Replace IOTC PWB.
 - | |
 - | Move red lead to P37-2. DMM goes from +12VDC to less than 1.0VDC when the Sensor is actuated.
 - | YES NO
 - | | Replace the Sensor.
 - | |
 - | Check for an open wire between J37 and P36. Replace the IOTC PWB (3-27).

Sensor is functioning properly. Check Paper Path and Drives again.

E3 Status Code RAP

An E3 code indicates that paper failed to reach the Paper Exit Sensor.

- o Run a test print (28*) to create an E3 jam.

The lead edge of the paper has actuated the Exit Sensor.

- | | |
|-----|---|
| YES | NO |
| | |
| | o Ensure Customer paper is 16 to 24lb (US), 65 to 100 gsm (RX). |
| | |
| | o If paper is stuck to the Drum, clean and check the Detack Corotron, then perform Electrostatic Series (3-43). |
| | |
| | o Check for an obstruction in the paper path and Fuser Assembly. |
| | |
| | o Enter code 30 and press OFF-LINE. Check the Exit Roll Drive Gear and Belt for smooth operation. |

Enter Diagnostic code 83 and press OFF-LINE. Open Printer and actuate the Exit Sensor. The printer beeps.

- | | |
|-----|--|
| YES | NO |
| | |
| | o Ensure that P/J 36 and P/J 44 are seated properly. |
| | |
| | o Refer to BCD 8.2. Disconnect PJ44 and check for +12VDC (+LED) at J44 pins 2 and 3. DMM reads +12VDC. |
| | |
| | YES NO |
| | |
| | Check for open wire between J44 and P36. Replace IOTC PWB. |

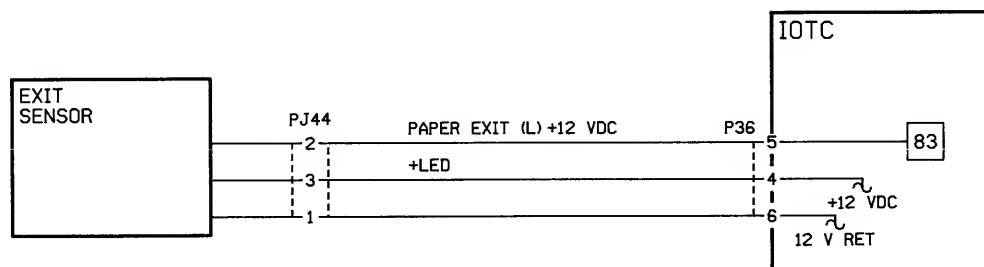
A	B
---	---

- | | |
|---|--------------------------|
| A | B |
| | |
| | Replace the Exit Sensor. |
| | |
- Sensor is functioning properly.
- o Check Electrostatics (3-43).
 - o Perform Fuser Alignment Procedure (3-48).

E4 STATUS CODE RAP

An E4 code indicates that paper has failed to leave the Paper Exit Sensor.

- o Ensure that the Output Tray is not full.
- o Check Exit Roll Drive Gear and Belt for smooth operation.
- o Check for a binding Exit Roll Sensor Actuator.



BCD8.2

PAPER FEED CLUTCH RAP

Enter diagnostic code 81 and press OFF-LINE Switch repeatedly. Paper Feed Clutch produces a noticeable "click" each time it energizes; every other time OFFLINE is pressed.

YES NO
Refer to BCD 8.3. Ensure that P/J 26, 27 and 32 are properly seated. Switch power OFF and remove the ROS. The voltage at P27 pin 6 to GND is +25VDC (+25VFWR) when power is switched ON.
YES NO
Replace the IOTC PWB (3-27).

Enter code 81 and press OFF-LINE. The voltage at P27 pin 5 to GND is +25VDC.

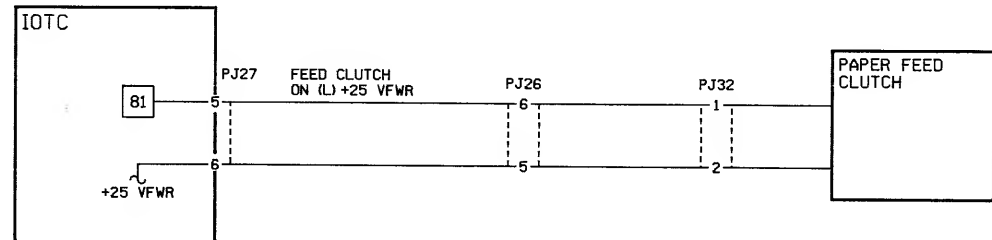
YES NO
Switch power OFF and check for an open in the Feed Clutch circuit and Clutch coil. Repair wiring or replace Clutch. (3-20).

Replace the IOTC PWB (3-27).

Open printer and attempt to rotate the Segment Roll Shaft while the clutch is energized (Diagnostic Code 81 is entered). The Shaft rotates.

YES NO
A B

- A B
| |
| |
| Clutch is good. Feed problems may be caused by paper supply, Paper Tray and Snubbers, or dirty or worn Segment Rolls.
| |
| |
| |
o Slide out Drum Module and check that Clutch Housing cut-out is positioned over the Tab on the Main Drive Motor mounting bracket. Refer to 4-5 and ensure that retaining pins are present in shaft.
o Remove Shaft assembly (3-20) and clean the Clutch surfaces, front and rear shaft bearings, and the shaft with film remover. DO NOT TOUCH CLUTCH SURFACES WITH FINGERS AFTER CLEANING THE CLUTCH.



BCD8.3

4045

REPAIR ANALYSIS PROCEDURES
PAPER PATH

OUTPUT TRAY FULL SENSOR RAP

tbd

BCD 8.4

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CLEANING AUGERS RAP

A problem with the Cleaning Augers will result in toner blotches on the prints and possible toner dumping within the Printer .

Remove the Cleaning Auger Drive Belt (3-24) and rotate the white Auger Pulley. The Auger rotates smoothly.

YES NO

- | o Refer to 3-24 and remove, clean and inspect the Cleaning Auger. Replace Auger if necessary.
- | o When finished, continue with checklist below.

Check operation of Sump Motor as follows:

1. Disconnect Main Drive Motor P/J 14.
2. Remove the Toner Sump from the printer.
3. Unclip and remove the Motor and Cover Assembly from the Sump.
4. Reconnect the Sump Motor PJ17.
3. Close and latch the printer. Enter code 30 and press OFF-LINE.

The Sump Motor coupling is rotating.

YES NO

- | Go to Sump Motor RAP (2-50).

Sump Motor is OK. continue with next column.

A

A

|

Check for binding of the Sump Auger. The Auger rotates smoothly.

YES NO

- | o Empty the Sump (3-5). Remove, clean and inspect, or replace the Sump Auger (3-24).
- | o Continue below.

|

o Check for a worn Motor to Auger coupling.

o Rotate the Auger and check that the Flicker Fingers are functioning. Look through the sump inlet hole.

o Check for an obstruction in the Sump Inlet hole or in the Elbow on the rear of the Drum Module.

FONT SENSOR CHECKLIST

This Checklist assumes that the cartridge fonts are not listed on the Configuration Sheet.

o Check that magnets are present on Inner Font Cover Door.

o With Front Cover installed, check that Inner Font Door latches firmly against the magnets.

If necessary, loosen screws holding the door and adjust position as required.

o Check that Font Sensor is connected to the External ROM Receptacle (ERR).

If the cartridge fonts are not printed on the Configuration Sheet after making the above checks:

o Replace the Font Sensor.

o Replace the External ROM Receptacle.

SUMP MOTOR RAP

This RAP assumes that the Sump Motor does not rotate when Main Drive (code 30) is enabled. The Sump Motor should be outside the printer with PJ17 connected and the Printer closed and latched.

- o Check for full sump (3-5).

Refer to BCD 9.2 and check that P10 on the AC Driver PWB is connected.

Set DMM to VAC scale. Check for ACHFX between P/J 17 pins 2 and 3. Voltage is available.

YES NO

| Check for open in wiring between P10-3
| and P/J 17-2. Replace AC Driver PWB.

Check for ACHFX between P17 pins 1 and 3. Voltage is available.

YES NO

| Replace Sump Motor.

Disconnect Main Drive Motor P/J 14. Enter code 30 and press OFF-LINE. The voltage at P17-1 goes to less than 5VAC.

YES NO

| Replace AC Driver PWB (4-12).

Replace Sump Motor. (The motor speed reduction gears are probably stripped or disengaged).

DOCTOR BLADE SOLENOID RAP

Ensure that the Solenoid Plunger moves freely. If it does not, remove the Plunger and clean it with Film Remover (US), Step 2 Cleaner (RX).

Refer to BCD 9.2 and ensure that P/J 26, 27 and 33 are properly connected.

Slide Drum Module out. Check for +25VDC (+25VFWR) at P33-2. Voltage is available.

YES NO

| Check for open between J33-2 and P27-4.
| Replace IOTC PWB (3-27).

| +25VDC is available at J33-1.

YES NO

| Replace Solenoid (3-22).

- o Check for an open between J33-1 and P27-3.

- o Replace the IOTC PWB (3-27).

ERASE LAMP RAP

This Rap assumes that the Erase Lamp does not illuminate when the Main Drive Motor is ON (component Code 30).

- o Switch power OFF and remove CVT (3-30).

- o Refer to BCD 9.2 and check connection of P/J 26, 27 and 41.

Disconnect P/J 41 and use the DMM to check continuity of the Erase Lamp. There is continuity.

YES NO

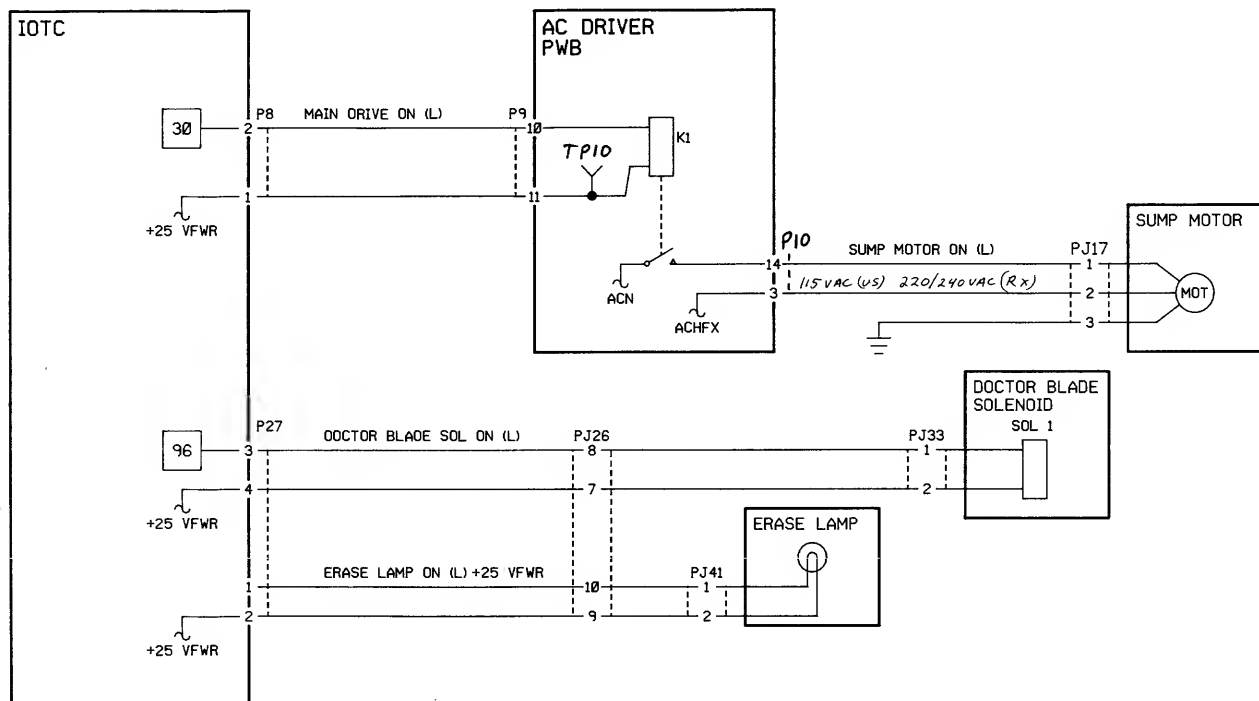
| Replace the Erase Lamp.

Check continuity of harness between P41 and P27. There is an open circuit.

YES NO

| Replace the IOTC PWB (3-27).

Repair wiring or connectors.



BCD9.2

HVPS RAP

This RAP assumes that one or more of the voltages from the High Voltage Power Supply are not available or cannot be adjusted to specification. Also, there is no open in the wiring of the corotrons, or the Developer Housing components.

Detack Corotron voltage is the problem (HVAC).

YES NO

If the problem is an output of the HVDC section, refer to BCD 9.3 and check for any of the other HVDC voltages, (Seal, Dev Bias, Screen). If any of the other voltages are good, replace the HVPS. If all the HVDC outputs are missing, continue below.

Disconnect J29 at the HVPS. Disconnect Main Drive Motor P/J 14. Enter code 70 and press OFF-LINE. Refer to BCD 9.3 and check for +25VDC (+25VFWR) between J29 pin 3 and pin 4. Voltage is good.

YES NO

Check for open between J29 and P24 at the IOTC. Replace the IOTC PWB (3-27).

Replace the HVPS.

A

A

Enter code 70 and press OFF-LINE. Refer to BCD 9.3 and check for 26 VAC between J29 pin 1 and pin 2. Voltage is good.

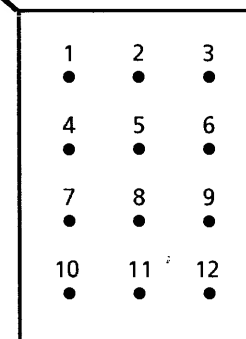
YES NO

Check for open between J29 and P24 at the IOTC. Replace the IOTC PWB (3-27).

Replace the HVPS (4-9).

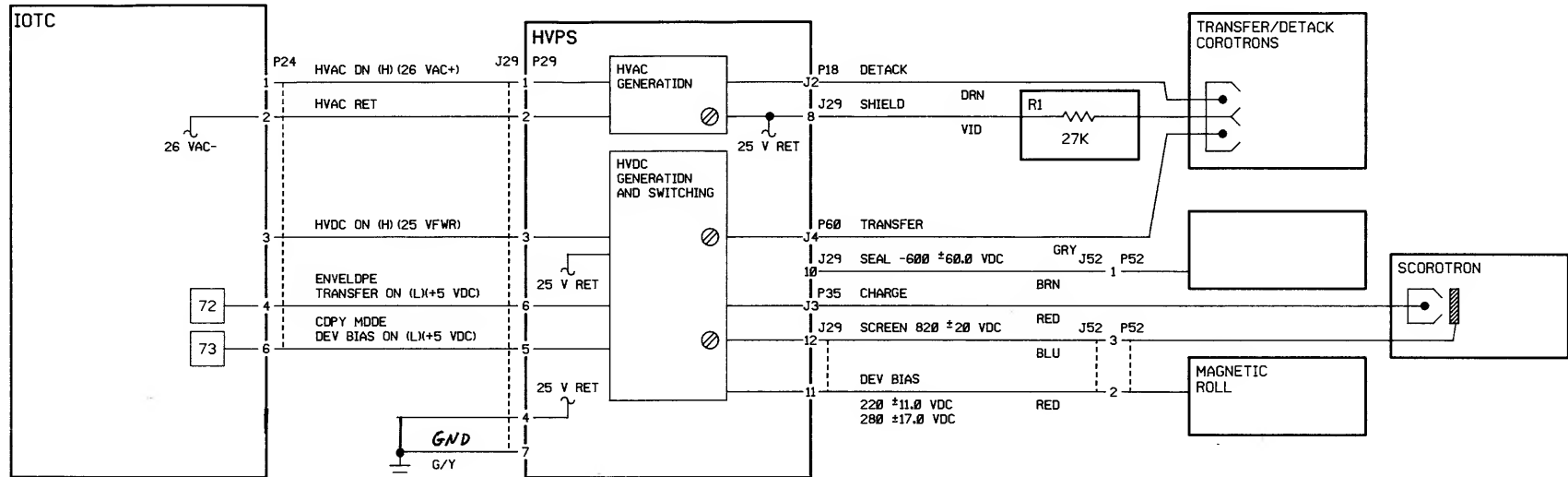
CONNECTOR SIDE

TAB



UV03-103

Figure 2-11. J29 Connector



BCD9.3

OL STATUS CODE RAP

The OL code will appear only in the Service Diagnostic Mode, while running test prints. An OL indicates that there is an "open loop" in the ADC system. This usually occurs if the Patch Sensor is dirty and is therefore unable to calibrate. The IOTC PWB will override the PATCH SIGNAL and enter a "forced normal" condition. This causes the Toner Motor to dispense at a rate of one second for every print or copy produced.

Clean the Patch Sensor. Run Print Test Pattern (42*). OL continues to appear.

YES NO
| Done.
|

Background is present on Test Prints.

YES NO
| Image density is too light.
| YES NO
| | Go to Patch Signal Check (2-54).
| |
| Go to Light Image Problem Checklist
| (2-7) and begin with step #5..
|

Go to Background Problem Checklist (2-5).

CAUTION: DISCONNECTING THE PATCH SENSOR HARNESS WHILE PRINTER POWER IS ON WILL DAMAGE THE SENSOR. ALWAYS SWITCH POWER OFF BEFORE REMOVING/REPLACING THE PATCH SENSOR.

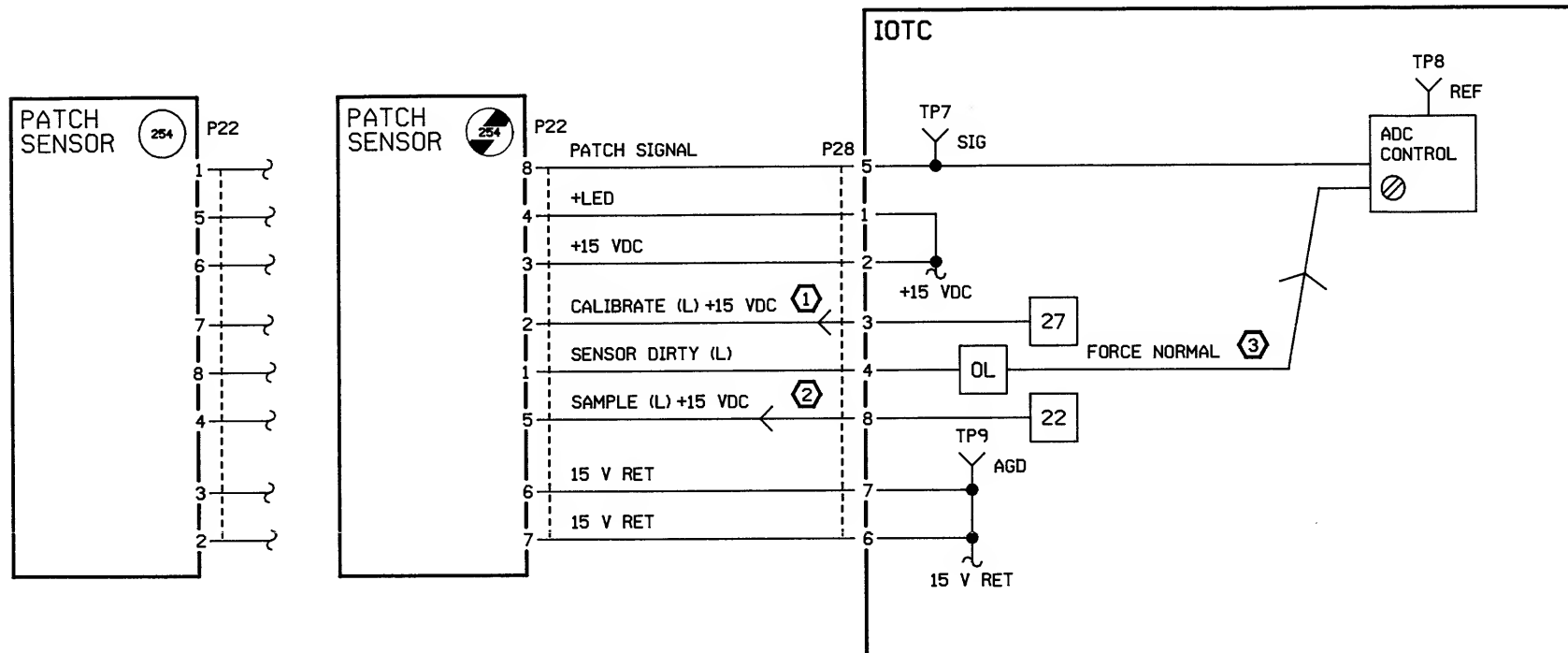
PATCH SIGNAL CHECK

Set DMM for 20VDC. Place PEAK HOLD switch on DMM to "+" and press PEAK HOLD button. Place red DMM lead on SIG and the black DMM lead on "AGD" of the IOTC PWB. Enter code 28* and press OFF-LINE. DMM reads >2VDC for the first four prints, then reads >7.5 VDC.

YES NO
| Refer to BCD 9.1. Check for open wire
| between P22 and P20.
| o Replace Patch Sensor and perform ADC
| Adjustment (3-46).
| o Replace IOTC PWB (3-27).
|

The Patch Sensor is functioning properly. If image density is varying, or an OL condition remains, perform the following:

- o Check/adjust ADC (3-46).
- o Go to Toner Motor RAP (2-56).



NOTES:

- ① SIGNAL IS NARROW PULSE WIDTH (200 μ SEC) AND OCCURS 2 TIMES EVERY 5 PRINTS
- ② SIGNAL IS NARROW PULSE WIDTH (200 μ SEC) AND OCCURS ONCE EVERY 5 PRINTS
- ③ OPEN LOOP (OL) CONDITION OVERRIDES THE PATCH SIGNAL AND TONER IS DISPENSED 1 SEC. FOR EVERY PRINT

BCD9.1

TONER SENSOR RAP

A failed Toner Sensor can cause the following symptoms:

- o The ADD TONER indicator remains ON when the Hopper is full.
- o The ADD TONER indicator does not go ON when the Hopper is empty.
- 1. Switch power OFF and remove the ROS.
- 2. Disconnect the Toner Sensor (P40) from the IOTC.
- 3. Connect a new Toner Sensor to J40.
- 4. Switch power ON, enter code 95 and press OFF-LINE.
- 5. Gently press and release the Sensor surface. The printer beeps.
YES NO
| Replace the IOTC PWB (3-27).
|
Remove the Toner Hopper (3-18) and replace the Toner Sensor (3-19).

TONER MOTOR RAP

This RAP assumes that the Hopper Mixer does not rotate when code 75 is enabled.

Refer to BCD 9.4 and check that P/J 16 and the AC Driver PWB connectors are firmly seated.

Remove CVT. Set DMM to VAC scale. Switch power ON. Check for ACH FX between P16 pin 2 and GND. Voltage is available.

YES NO
| Check for open in wiring between P10-4 and P16-2. Replace AC Driver PWB.
|

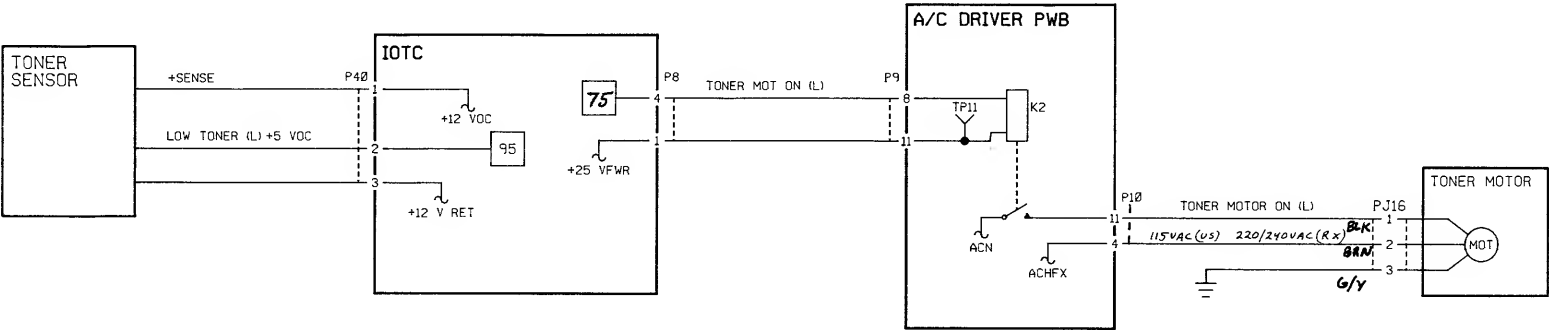
Check for ACH FX between P16-1 and GND. Voltage is available.

YES NO
| Replace Toner Motor (3-19).
|

Enter code 75 and press OFF-LINE. The voltage at P16-1 drops to less than 5VAC.

YES NO
| |
A B

- | | |
|---|--|
| A | B |
| | |
| | Press OFF-LINE again. Set DMM to VDC scale. Place Red Spring Wire Hook on TP 11 of the AC Driver PWB, and the Black lead to GND. DMM reads +25VDC (+25VFWR). |
| | YES NO |
| | o Check for open wire between P8 pin 1 and P9 pin 11. |
| | o Replace IOTC PWB (3-27). |
| | |
| | Press OFF-LINE (with code 94 entered). Voltage at AC Driver PWB P9-8 goes to less than 1VDC. |
| | YES NO |
| | o Check for open between P8 and P9. |
| | o Replace IOTC PWB (3-27). |
| | |
| | Replace AC Driver PWB. |
| | |
| o | Slide out the Drum Module and check for a binding auger coupling. |
| | |
| | Remove the Toner Hopper (3-18), and check for binding gears or Toner Motor. Refer to 4-8 and replace Hopper components as required. |



BCD9.4

FUSER RAP

Classify problem:

- o First two pages (only) of print run are partially fused. Go to Fuser ZAP RAP.
- o All prints are unfused. Continue below.

Enter diagnostic code 24 and press OFF-LINE. The Heater Rod lights.

YES	NO
	Switch power OFF. Remove Fuser (3-25)
	and check continuity of Heater Rod,
	(refer to BCD 10.0). There is
	continuity between P20 pins 1 and 2.
	YES NO
	Check wiring of Fuser. Replace
	Heater Rod (3-25).
	Install Fuser. Switch power ON. Check
	for ACH FX between TPB on the AC
	Driver PWB and GND. Voltage available.
	YES NO
	Check that P/J's are properly
	seated on the AC Driver PWB.
	Replace the AC Driver PWB.

A	B
---	---

A	B
	Enter code 24. TP6 goes from +12VDC to
	+5.0VDC when OFF-LINE is pressed.
	YES NO
	o Check wiring between IOTC P6
	and AC Driver P6.
	o TP6 goes to less than + 1.0VDC.
	replace the AC Driver PWB.
	o TP6 remains at +12.0VDC.
	Replace the IOTC PWB (3-27).
	E26 (red wire) of Q1 (Fuser Triac) goes
	from 1.0VAC to 2.5VAC when Heater Rod
	is energized.
	YES NO
	o Check connections between P12
	and the Fuser Triac.
	o Replace AC Driver PWB.
	o Check connections between P12 and the
	Fuser Triac Q1.
	o Replace Fuser Triac Q1 (4-12).
	o Clean Fuser Assembly (page 3-8).
	o If problem is intermittent, check that all
	P/J's shown on BCD 10.0 are seated properly.

FUSER ZAP RAP

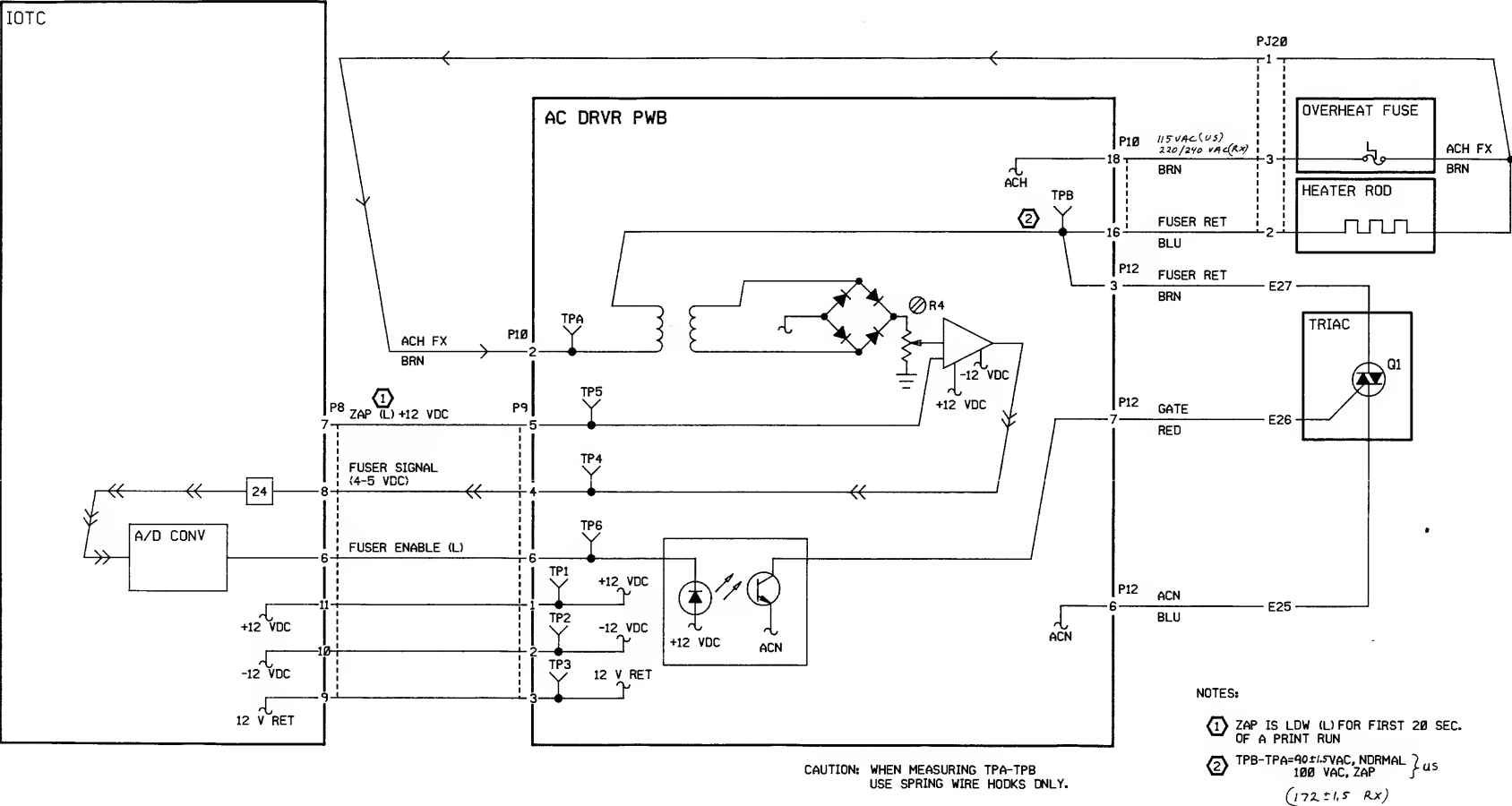
The Fuser ZAP circuit provides an increase in Fuser power for the first two prints in a print run. This will ensure adequate fusing if the Fuser Assembly has cooled since the last print run.

The RAP assumes that the Fuser is operational and that Fuser Power is set to 90.0 \pm 1.5 VAC (US) or 172 \pm 1.5 VAC (RX). Adjustment procedure on page 3-49.

Place DMM leads on TPA and TPB on the AC Driver PWB (refer to BCD 10.0). Enter code 24 and press OFF-LINE. The DMM reads approximately 100VAC (US) or VAC (RX) for 20 seconds.

YES	NO
	Change DMM to DC scale. Put RED lead
	on TP5 (ZAP (L) signal) and BLACK lead
	on TP3 (12V RET). The voltage switches
	from +12VDC to less than 1.0VDC when
	OFF-LINE is pressed.
	YES NO
	Check wiring between IOTC P8
	and AC Driver PWB P9. Replace
	IOTC PWB (3-27).
	Replace AC Driver PWB.

Fuser ZAP circuit is operating correctly.



CAUTION: WHEN MEASURING TPA-TPB
USE SPRING WIRE HOOKS ONLY.

BCD10.0

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COMPONENT/CONNECTOR LOCATION DIAGRAMS

Information contained in this section will aid in identifying and locating the individual electrical components, plugs and jacks referenced in this document.

Table 2-1 identifies which component location diagram an electrical component is shown on.

Figures 2-12 through 2-16 give the physical location for components. Figure 2-17 shows the Plug/Jack locations for the AC and DC harnesses. Figure 2-18 shows the connector Jack layout on the MPU/IG, IOTC, C-Video and AC Driver PWBs.

Table 2-1. Component Location Index

COMPONENT NAME		LOCATION FIGURE NO.
AC DRIVER PWB		2-14
BLOWER MOTOR	MOT3	2-14
BUZZER	LS1	2-14
CONTROL PANEL		2-12
C-VIDEO PWB		2-14
CVT CLUTCH	CL2	2-16
DOCTOR BLADE SOLENOID	SOL1	2-13
DOCUMENT DETECT SENSOR	S14	2-16
DOCUMENT REG. SENSOR	S15	2-16
D-RAM PWB		2-14
ERASE LAMP	L1	2-13
EXPOSURE LAMP	L2	2-16
EXTERNAL ROM RECEPTACLE	ERR	2-14
FONT SENSOR	S3	2-14
FUSES (LVPS)	F2, F3	2-14
FUSE F3 (RX ONLY)	F3	2-12
HEATER ROD	RT1	2-15
HIGH VOLTAGE P.S.	HVPS	2-14
HOME POSITION SENSOR	S7	2-13
HOST INTERFACE PWB		2-14
IOTC PWB		2-14
LATCH SENSOR	S4	2-15
LINE FILTER	LF1	2-14
LOW VOLTAGE P.S.	LVPS	2-14
MAIN DRIVE MOTOR	MOT1	2-13
MAIN POWER RELAY	K1	2-14

Table 2-1. (continued)

COMPONENT NAME		LOCATION FIGURE NO.
METER		2-12
MPU/IG PWB		2-14
OVERHEAT FUSE		
CVT	F5	2-15
FUSER	F4	2-15
PATCH SENSOR	LCIRD	2-15
PAPER EXIT SENSOR	S11	2-15
PAPER FEED CLUTCH	CL1	2-13
PAPER TRAY SENSORS		
#1	S8	2-15
#2	S9	2-15
#3	S10	2-15
POWER ON SWITCH	S1	2-12
REGISTRATION SENSOR	S12	2-15
SUMP MOTOR	MOT2	2-15
TONER MOTOR	MOT4	2-15
TONER SENSOR	S13	2-14
TOP COVER SENSOR	S2	2-14
TRIAC, FUSER	Q1	2-14
TRIAC, EXPOSURE LAMP	Q2	2-14
TRAY FULL SENSOR	S6	2-12

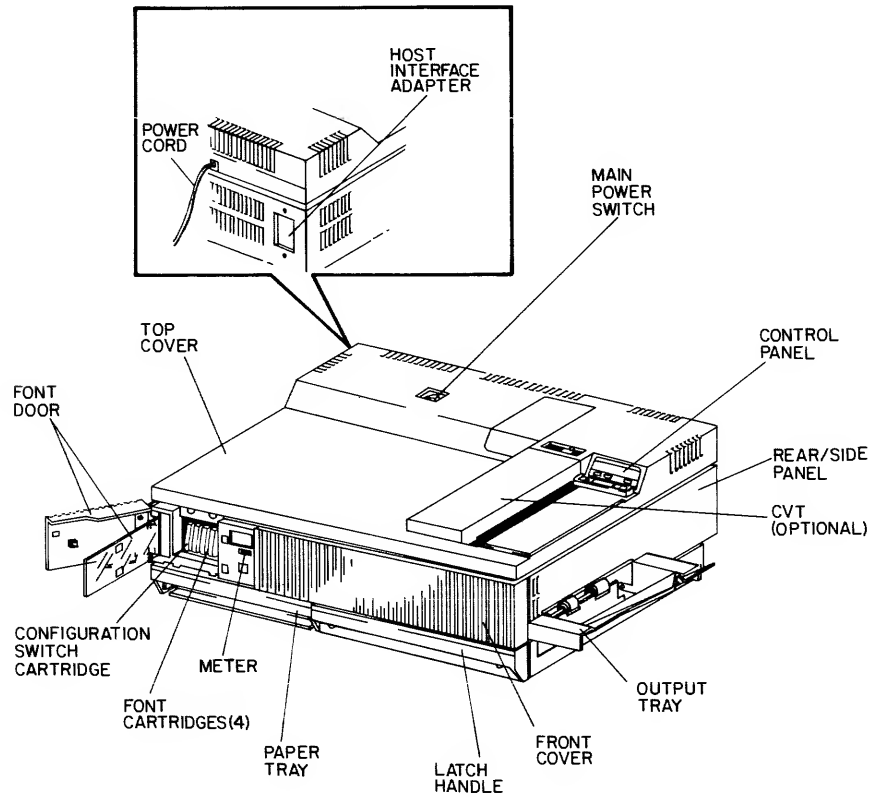


Figure 2-12. Covers

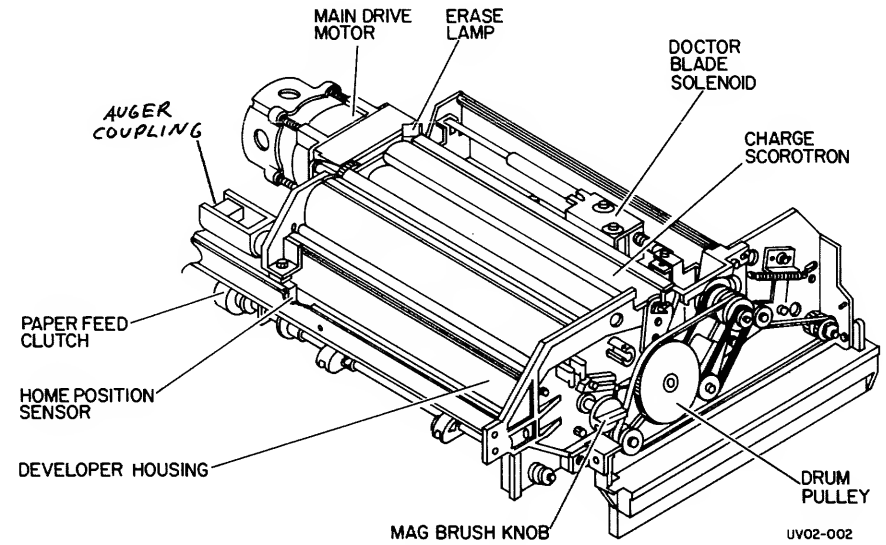
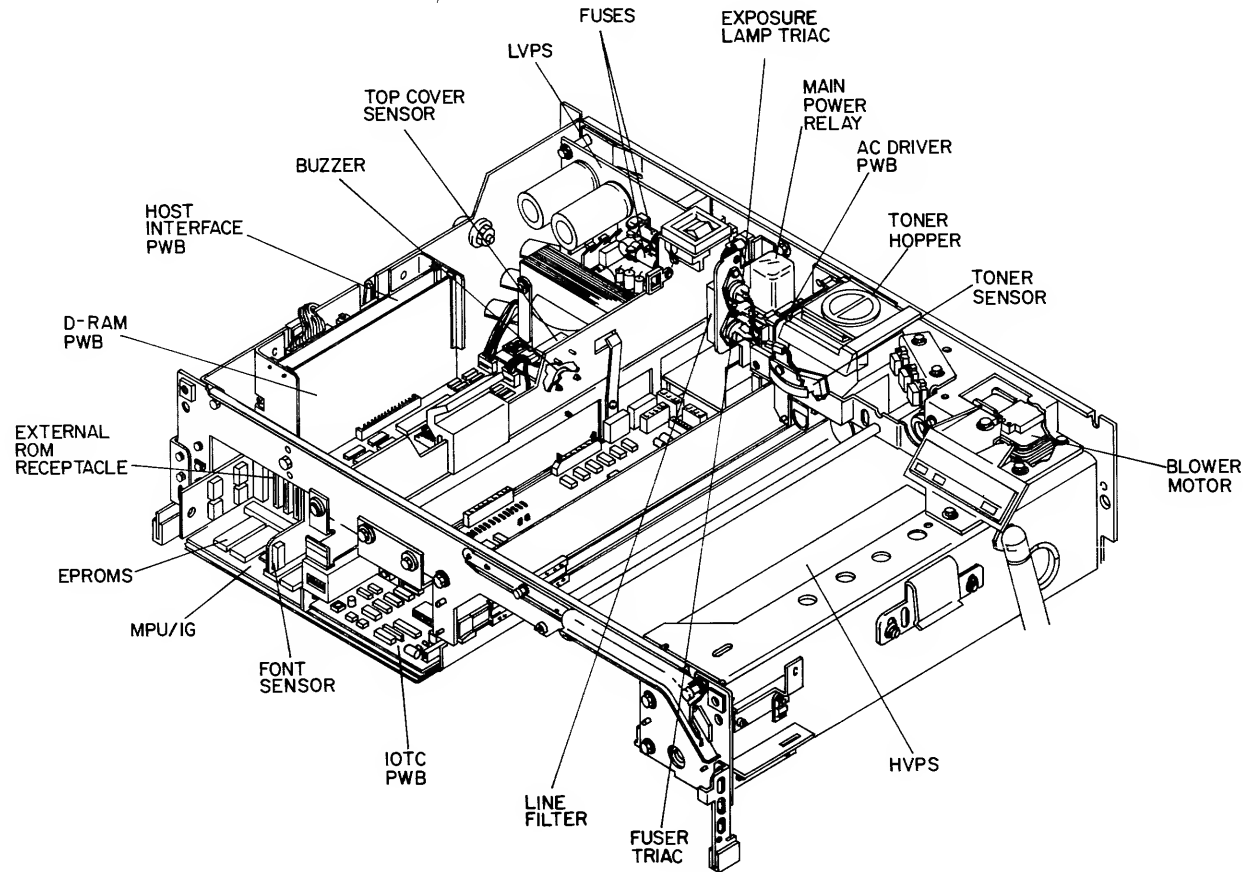
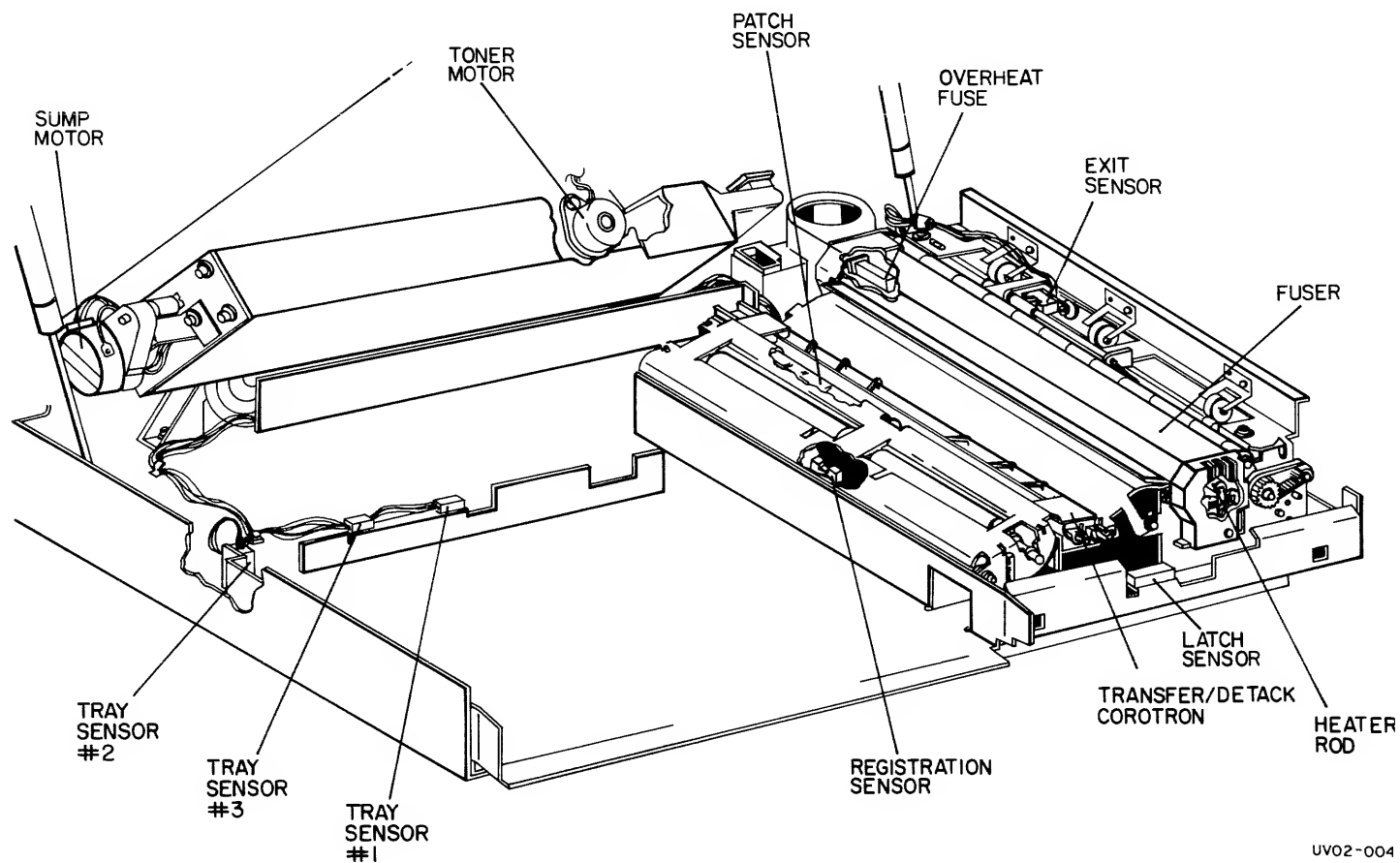


Figure 2-13. Drum Module



UV02-003

Figure 2-14. Upper Frame Components



UV02-004

Figure 2-15. Base Frame Components

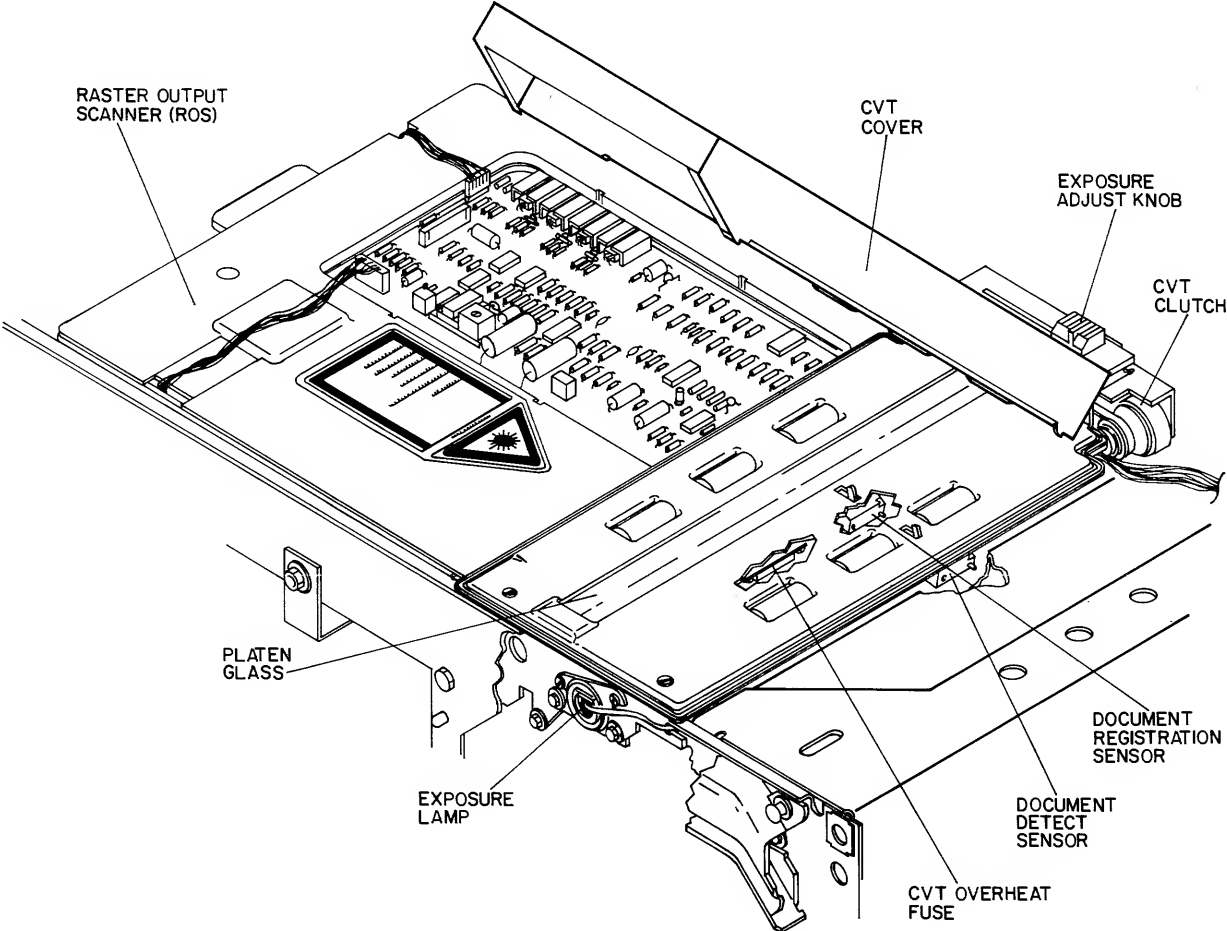


Figure 2-16. ROS/CVT Components

UV02-005

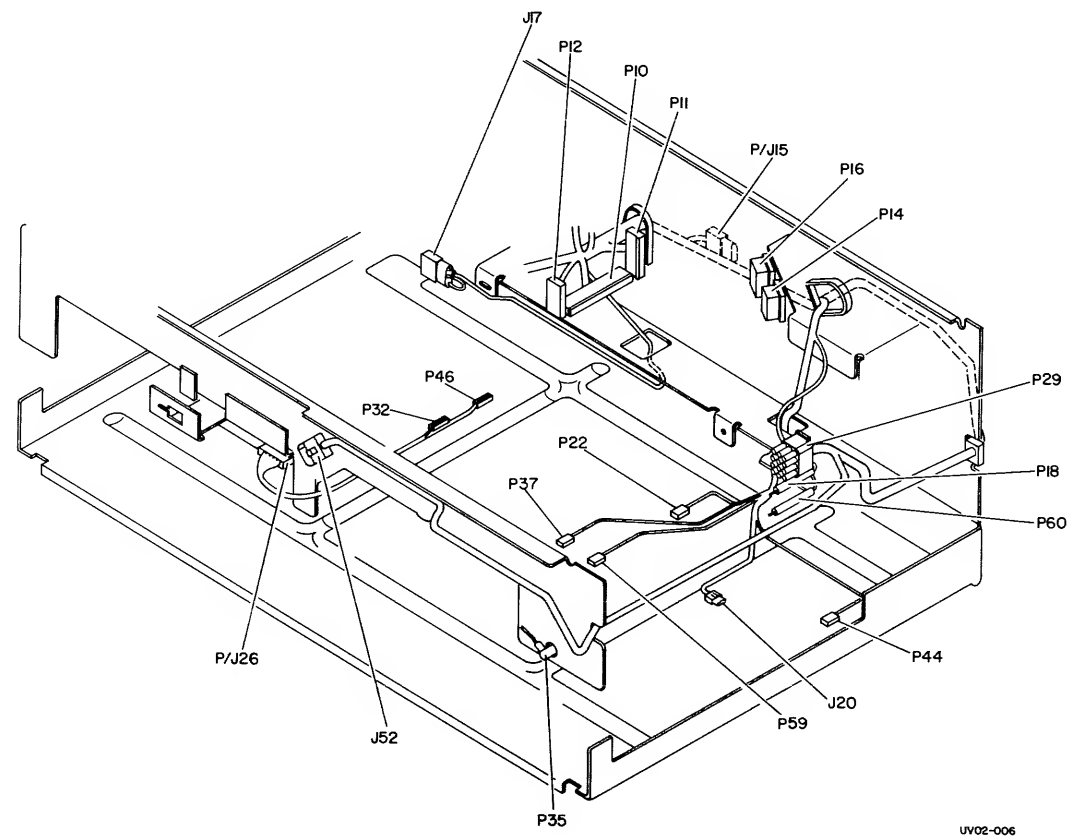
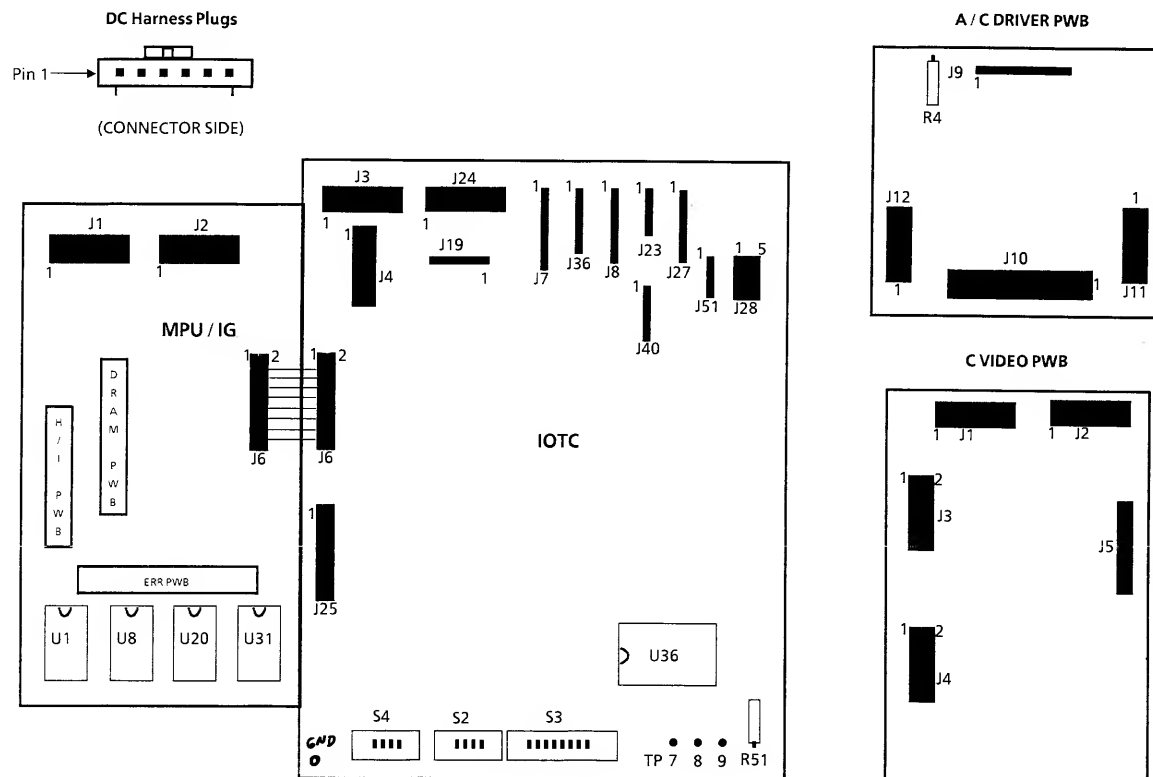


Figure 2-17. Plug/Jack Locations

UV02-006



UV02-007

Figure 2-18. PWB Connector Locations

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INTRODUCTION

This section contains the task details for the 35K Extended Maintenance Procedure. Performing this procedure will maintain optimum printer reliability and print/copy quality. In addition to this procedure, you should do the following while performing Extended Maintenance activities:

- o Inspect Timing and Drive Belts for excessive wear. Refer to 4-3 and replace components as required.
- o Check condition of Ventilation Ducts and Seals. Refer to 4-2 and replace components as required.
- o Look for foreign objects, (staples, paper clips, etc) in the Drum Module and Paper Path areas.
- o Look for potential electrical problems such as: damaged or crimped wires; loose connectors or terminals. Repair parts are included in the Electrical Component H/W Kit 600S8654.

Before starting, refer to page 5-15 and ensure that you have all the cleaning materials that are listed on that page.

EXTENDED MAINTENANCE PROCEDURE

1. Switch power OFF and disconnect the power cord.
2. Remove Top Cover and Front Cover.
3. Position a drop cloth in front of Printer.
4. Remove the ROS.
5. Clean the ROS Window with a cleaning pad moistened with Lens and Mirror Cleaner.

PRINTERS WITH CVT OPTION:

1. Remove Platen Glass (3-32).

CAUTION: When cleaning the Platen Glass or Optics Filter, place them on a flat surface to prevent damage.

2. Clean the Platen Glass with a cleaning pad moistened with Lens and Mirror Cleaner.
3. Remove the CVT (3-30).

4. Remove and clean the CVT Staple Tray.
5. Clean CVT upper baffle with a cleaning cloth moistened with Formula "A".
6. Clean CVT input and output rollers with a cleaning cloth moistened with Film Remover (US), Step 2 Wash (RX).
7. Remove the Exposure Lamp and Optics Filter. (3-31).
8. Clean Lamp and Filter with a Fuser Solvent Pad. After cleaning wipe with a clean towel and water before replacing.
9. Clean optics cavity by pushing a Fuser Solvent pad through the cavity using the Electrometer Probe Holder (located under the Prefuser Baffle).
10. Clean top and bottom of Selfoc lens with a cotton swab moistened with Lens and Mirror Cleaner.
11. Restore the CVT and continue on next page.

DRUM MODULE

1. Slide the Drum Module out on rails (3-15).
2. Replace the Developer Filter (Figure 3-1).
3. Remove Scorotron Assembly and clean it with a brush.
4. Apply a small amount of Film Remover (US), Step 2 Wash (RX) to a cleaning pad and wipe the Scorotron Shield, Screen, Wire, and Light Bar.
5. Remove and clean Erase Lamp.
6. Remove the Doctor Blade Assembly (3-22) and use Film Remover (US), Step 2 Wash (RX) to clean:
 - o Blade edge
 - o Translation Cam
 - o Translation Follower
 - o Translation Shaft
7. Apply Zinc Stearate to edge of Blade.

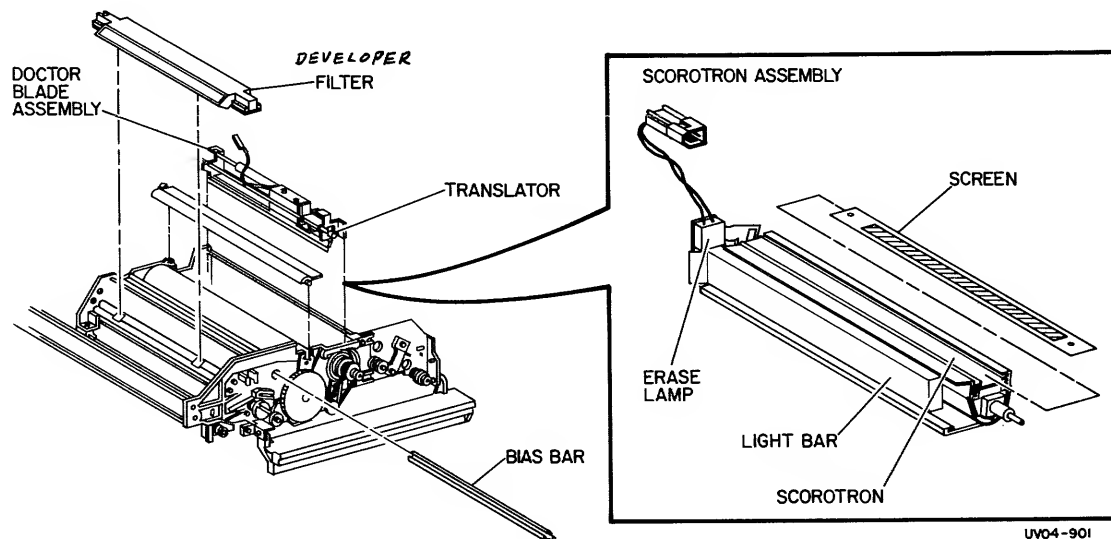


Figure 3-1. Drum Module Components

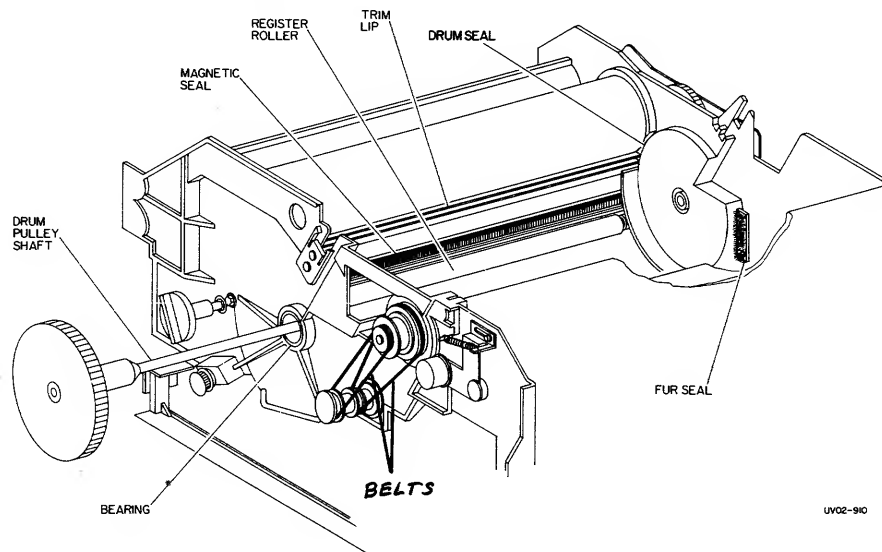
DRUM CLEANING

CAUTION: The Drum has an extremely thin selenium layer. Do not polish or pumice the Drum. Do not use water on the Drum. Use Film Remover (US) or Step 2 Wash (RX) in localized areas ONLY. Do NOT attempt to wash the Drum by applying Film Remover to entire surface of the Drum.

NOTE: Use the materials in the Drum Cleaning Kit, 600S5548, when cleaning the Drum.

1. Remove the Drum (3-16).
2. Gently remove toner and developer from the surface of drum with the DRY Polyurethane Pad.
3. Inspect the Drum surface. If print quality defects are caused by a damaged Drum, install a new Drum (3-16). If there are finger prints or other surface defects, clean ONLY the affected area with Polyurethane Pad moistened with Film Remover (US), Step 2 Wash (RX).
4. Apply a thin layer of zinc stearate to the entire surface of Drum and set it aside.

5. While the Drum is removed clean the components shown in Figure 3-2.:
6. Check condition of the Lower (Mylar) Seal. If it is not perfectly straight, replace it.
7. Replace the Developer (3-4).



UV02-940

Figure 3-2. Drum Module Components

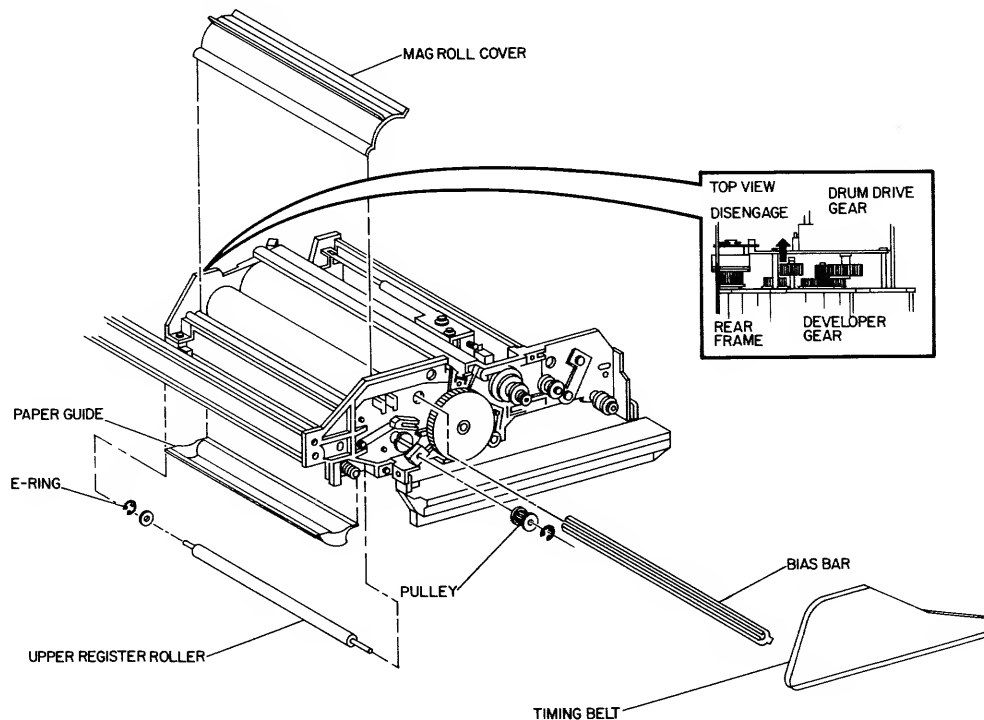
DEVELOPER REMOVAL/REPLACEMENT

NOTE: Skip step number 1 if you are performing the entire Extended Maintenance Procedure.

CAUTION: PLACE A PIECE OF PAPER OVER THE DRUM TO PROTECT IT WHEN REMOVING THE MAG ROLL COVER.

1. Prepare to remove the developer.
 - a. Place a drop cloth inside the printer.
 - b. Slide out the Drum Module (3-15).
 - c. Remove the Bias Bar and Mag Roll Cover.
2. Disengage the Developer Drive gear (Figure 3-3).
3. Remove the Upper Registration Roller.
 - a. Remove Timing Belt.
 - b. Remove front and rear E-Rings.
 - c. Remove Pulley and Register Roller.
4. Remove the plastic Paper Guide.
5. Pin the Drum Module rail and allow Printer to open fully.
6. Place the Developer Dump Bag inside the container.
7. Remove the Developer Plug and allow developer to pour into bag.
8. Rotate Mag Brush Knob in a clockwise direction to remove all of the developer.

9. Install a new Plug.
10. Install new Developer by pouring it slowly onto the Mag Roll, while rotating the Mag Roll Knob counterclockwise.
11. Engage the Developer Drive Gear.



UV02-907

Figure 3-3. Developer Removal

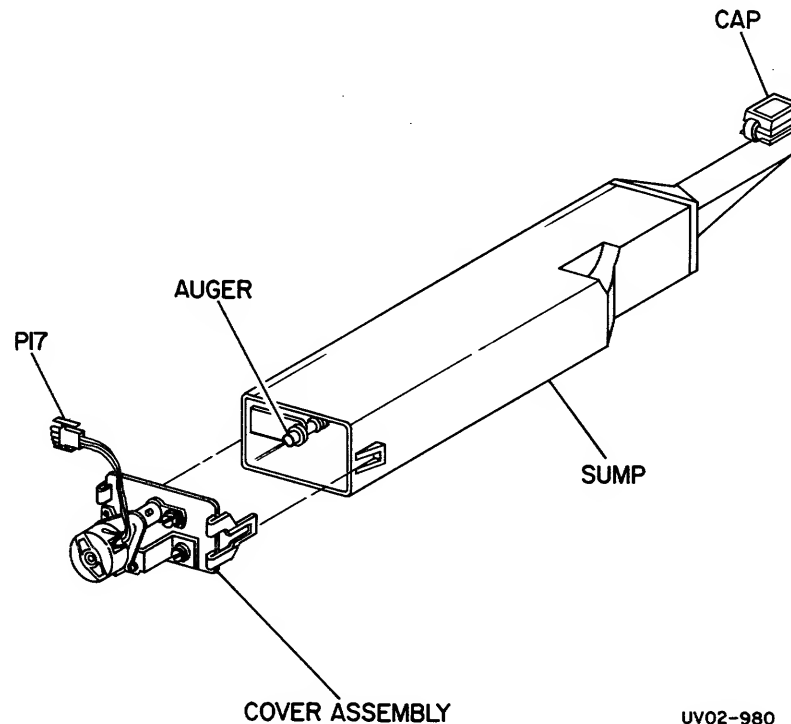
TONER SUMP EMPTYING

1. Open the Printer and remove the Paper Tray.
2. Unlatch Sump and disconnect P/J 17 (Figure 3-4).
3. Place Sump on Drop Cloth.
4. Place Cap on Toner inlet hole.
5. Remove Cover Assembly.
6. Hold a disposable bag firmly around Sump opening.
7. Empty the Toner into the bag.
8. Tie the bag securely and dispose of it.

REPLACEMENT

When replacing the cover assembly, be sure that the Motor Coupling is properly engaged with the Auger.

Remove Cap from the Toner inlet hole and place it towards the Sump body.



UV02-980

Figure 3-4. Toner Sump

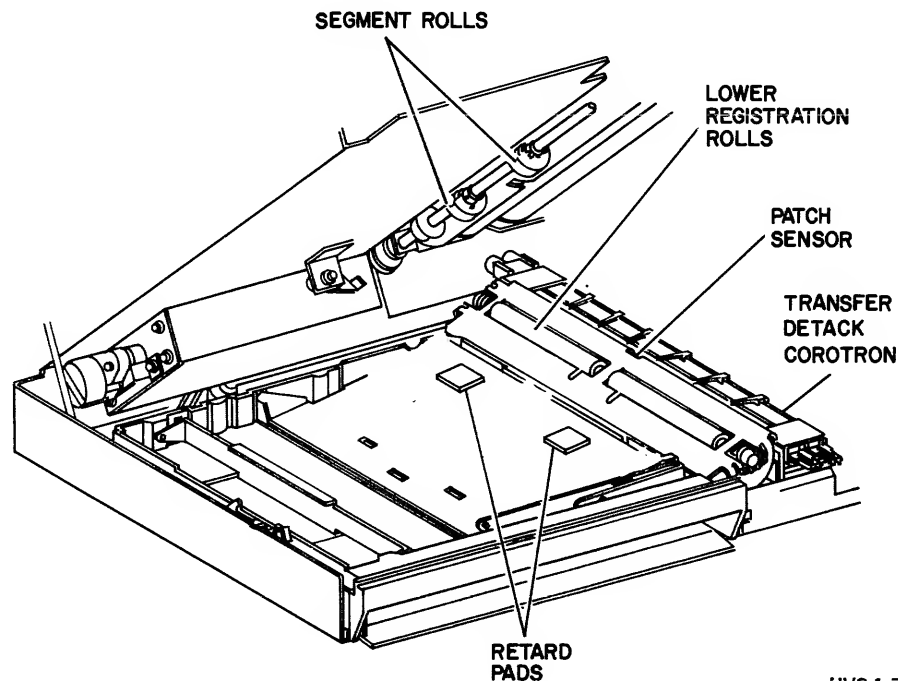
PAPER PATH

1. Use a cleaning cloth moistened with Film Remover (US) < Step 2 Wash (RX) to clean the following:
 - o Lower Registration Baffle and Rollers
 - o Retard Pads
 - o Patch Sensor Lens
 - o Segment Rollers

2. Using a cloth moistened with water, clean the Paper Tray and Base Pan.

NOTE: In the following step slide the paper guides on the Detack Corotron to one end, which will allow access for cleaning.

3. Remove the Transfer/Detack corotron. Apply a small amount of Film Remover (US), Step 2 Wash (RX) to a cleaning pad and wipe the corotrons and shields.



UV04-702

Figure 3-5. Paper Path Components

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CLEANING OF FUSER ASSEMBLY

INTRODUCTION

The following procedure is to be used when cleaning the fuser assembly.

Thorough testing has shown the solvent pads to be safe for use as a Fuser Base cleaner and that it will reduce cleaning time.

As with most cleaning solvents, it may pass through the skin causing irritation. **IN ORDER TO AVOID SKIN CONTACT ONLY THE GLOVES SPECIFIED BELOW (99P3082) ARE TO BE WORN** since the chemicals in the solvent are known to degrade other glove materials resulting in penetration of the glove material.

The solvent may cause irritation to the eyes and the odor may be objectionable to some users. Ensure that there is adequate ventilation and avoid prolonged contact with the vapors during the cleaning procedure.

This cleaner presents no health or safety hazard when used as directed, but under no circumstances should it be used for a general purpose face or hand cleaner. For this reason, it should be kept out of the reach of children.

CLEANING MATERIALS:

Fuser Cleaning Solvent Pads
Formula "A" Cleaner
Pumice Pads
Disposable Gloves (Urethane) (99P3082)
Disposable Plastic Bags

PROCEDURE

WARNING: Fuser is hot. Be careful when cleaning the fuser.

WARNING: Always wear protective gloves while using the solvent to avoid skin irritation. Avoid contact with the eyes and do not breathe the vapors or mist. In case of accidental contact with the skin or eyes, wash thoroughly with water.

CAUTION: Do not use cleaning solvent pads on any rubber or plastic parts, or on the Quartz Rod and Shield. Also, do NOT use Film Remover (US) or Step 2 Wash (RX) on any Fuser components. Wipe all cleaned components with a towel and water.

NOTE: If deposits cannot be removed from the quartz shield using a pumice pad, carefully use the edge of a 6 inch ruler to remove the deposits.

FUSER CLEANING (continued)

1. Remove Fuser Assembly (3-25).
 - a. Remove Prefuser Baffle.
 - b. Disconnect P/J 20.
 - c. Unclip rear holdown clip.
2. Disassemble Fuser.
 - a. Remove Fuser Base.
 - b. Remove Front Cap and End Block.
 - c. Remove Heater Rod and Quartz Shield (3-25).

CAUTION: PLACE THE QUARTZ SHIELD ON A FLAT SURFACE TO CLEAN IT.

3. Clean the Quartz Rod, Reflector and Shield with a Solvent Pad. Wipe all components with a cleaning cloth moistened with water.

NOTE: When installing the Heater Rod, position it towards the top of the Reflector, (away from the Quartz Shield).

4. Reassemble the Fuser with the unused side of the base toward the Reflector. If the Fuser has already been turned, replace it.

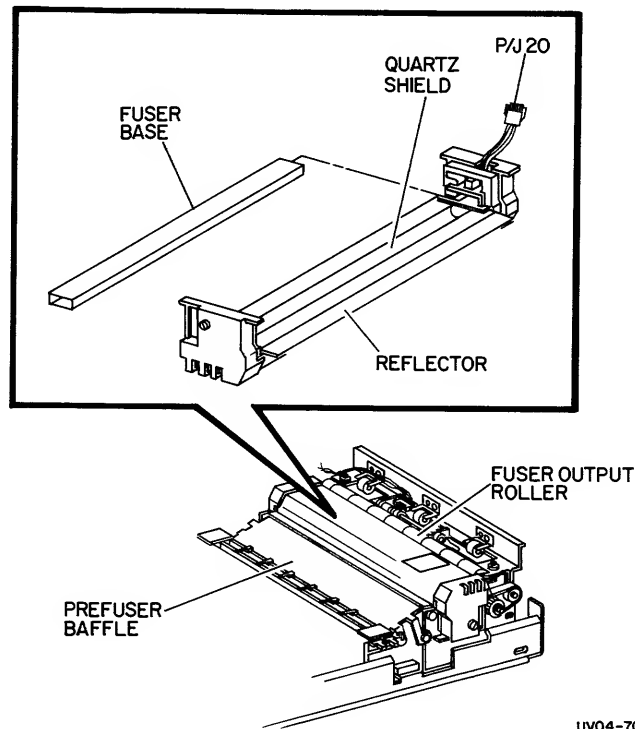


Figure 3-6. Fuser Components

5. Clean the upper Fuser Output Roller (metal) with a cleaning solvent pad.
6. Apply Formula "A" Cleaner to a towel and clean the lower fuser roll and feedout rollers.
7. Wipe Rollers with a cleaning cloth dampened with water.
8. Place all used cleaning materials in a disposable plastic bag and discard.
9. Place a piece of paper between seal and Fuser and install Fuser Assembly.
10. Ensure that rear of Fuser is clipped into place.

WRAP UP

- o Check the condition of ventilation seals (Fuser and CVT Transition Duct). Refer to 4-2 and replace any damaged or deformed seals.
- o Perform Electrostatic Series (3-43).
- o Check and adjust, if required, ROS Power (3-45) and ADC (3-46).

This concludes the Extended Maintenance Procedures. Restore the Printer and return to Call Flow to perform the Functional Checklist, (page 1-4).

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DRUM MODULE (Parts List on 4-9)

Procedure to "Slide Out" and "Remove".

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. SLIDE OUT DRUM MODULE.
 - a. Open Printer and place a sheet of paper under the Drum.
 - b. Lower the Upper Frame and place latch in the service position (Figure 3-7).

WARNING: FAILURE TO PLACE THE LATCH IN THE SERVICE POSITION MAY RESULT IN PERSONAL INJURY OR MACHINE DAMAGE.

- c. Disconnect P/J 26, P/J 52 and the Charge Scorotron lead.
 - d. Remove Optics Intake Duct.
 - e. Remove nuts.
 - f. Slide the Module out until it stops.
3. REMOVE DRUM MODULE.
 - a. Slide out Drum Module (Step 2 above).
 - b. Remove CVT (3-30).
 - c. Disconnect Main Drive Motor P/J 14.
 - d. While holding the Drum Module by each rail, push up on latches to release the Drum Module from rails.

REPLACEMENT

Rotate Mag Brush Knob to ensure that Drive Gear and CVT Gear mesh properly.

If a new Drum Module is being installed, perform the Latch Handle Adjustment (3-55).

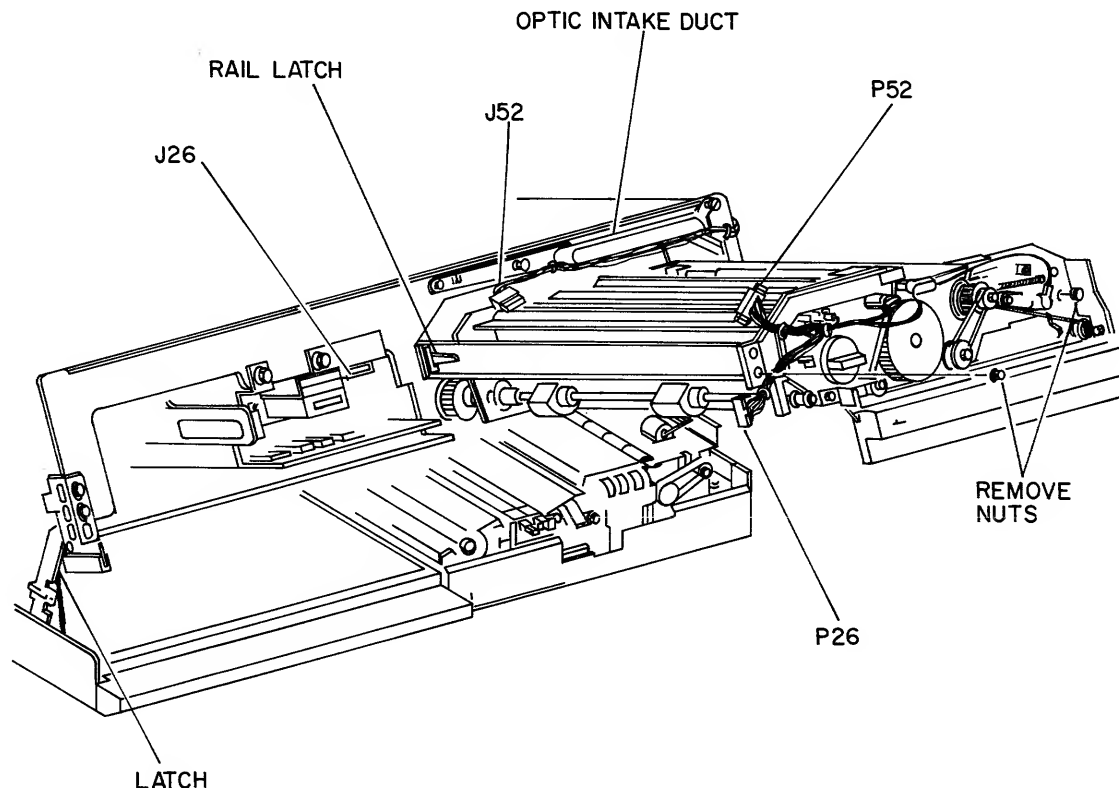


Figure 3-7. Drum Module

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DRUM (Parts List on 4-9)

REMOVAL

CAUTION: The Drum coating has an extremely thin layer and is easily damaged. Use caution when handling the Drum.

1. SWITCH POWER OFF.
2. SLIDE OUT DRUM MODULE (3-15).
3. ACCESS THE DRUM (Figure 3-8).
 - a. Remove Scorotron.
 - b. Remove Doctor Blade assembly.
 - c. Remove Bias Bar.
 - d. Remove Mag Roll cover.
 - e. Rotate the Mag Roll Knob, three times in a clockwise direction.
4. REMOVE DRUM PULLEY.
 - a. Release tension on timing belt idler.
 - b. Remove timing belt.
 - c. Unscrew and remove drum pulley.
5. PUSH DRUM TOWARD FRONT FRAME TO REMOVE.
6. DISASSEMBLE THE DRUM (Figure 3-9).

REPLACEMENT

1. INSTALL END BELLS ON DRUM.

(continued)

2. CLEAN THE DRUM CAVITY AND CHECK THE CONDITION OF THE LOWER SEAL. REPLACE THE LOWER SEAL IF IT IS NOT STRAIGHT.
3. APPLY ZINC STEARATE TO THE DRUM AND INSTALL IT IN THE DRUM MODULE.
4. BREAK IN DRUM (3-46).
 - a. Enter Code 71* and press OFFLINE. Allow to run for 4 minutes.
5. ADJUST ROS POWER (3-45).

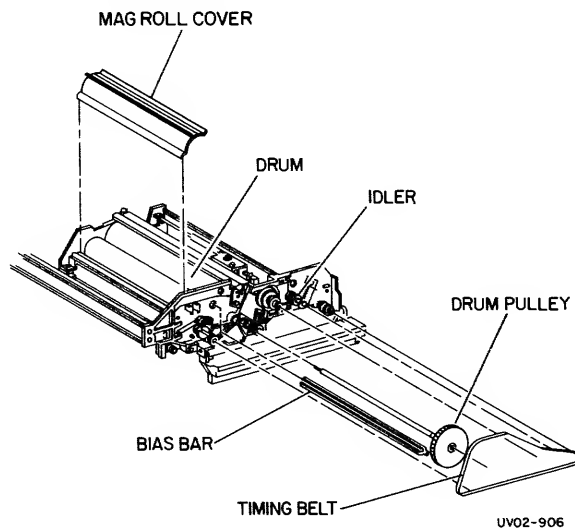


Figure 3-8. Drum Removal

6. PERFORM ADC ADJUSTMENT (3-46).

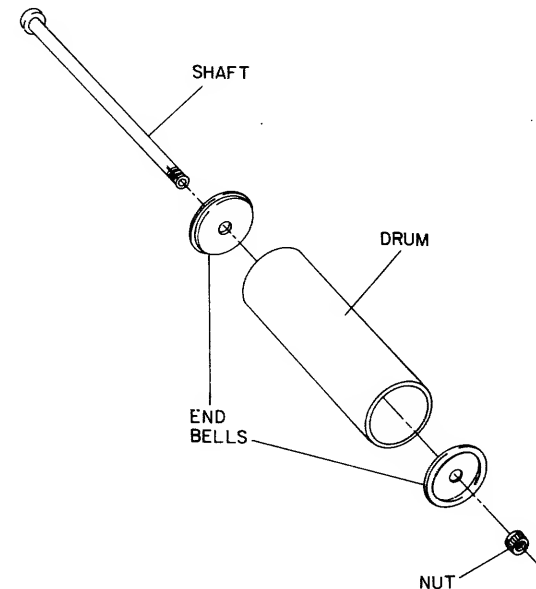


Figure 3-9. Drum Assembly

MAIN DRIVE MOTOR (Parts List on 4-3)**REMOVAL**

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE DRUM (3-16).
3. REMOVE DRUM MODULE (3-15).
4. REMOVE DRIVE MOTOR (Figure 3-10).
 - a. Cut cable ties.
 - b. Remove plastic Wire Guide
 - c. Remove screws.
 - d. Note the orientation of Main Drive Motor Gear.

REPLACEMENT

NOTE: Ensure that the Main Drive Gear is installed in the same orientation.

NOTE: Ensure that Paper Feed Clutch is engaged with Tab on Motor Frame.

CAUTION: REPLACE CABLE TIES AND WIRE GUIDE TO PREVENT DAMAGE TO WIRES WHEN MODULE IS INSTALLED..

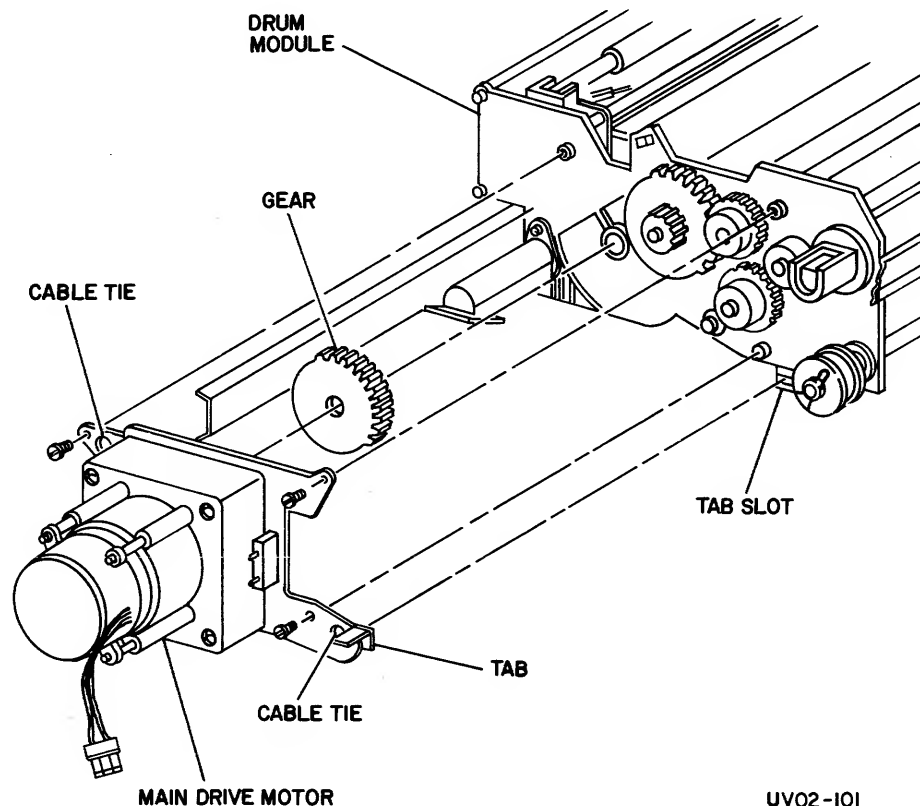


Figure 3-10. Main Drive Motor

TONER HOPPER (Parts List on 4-8)

REMOVAL

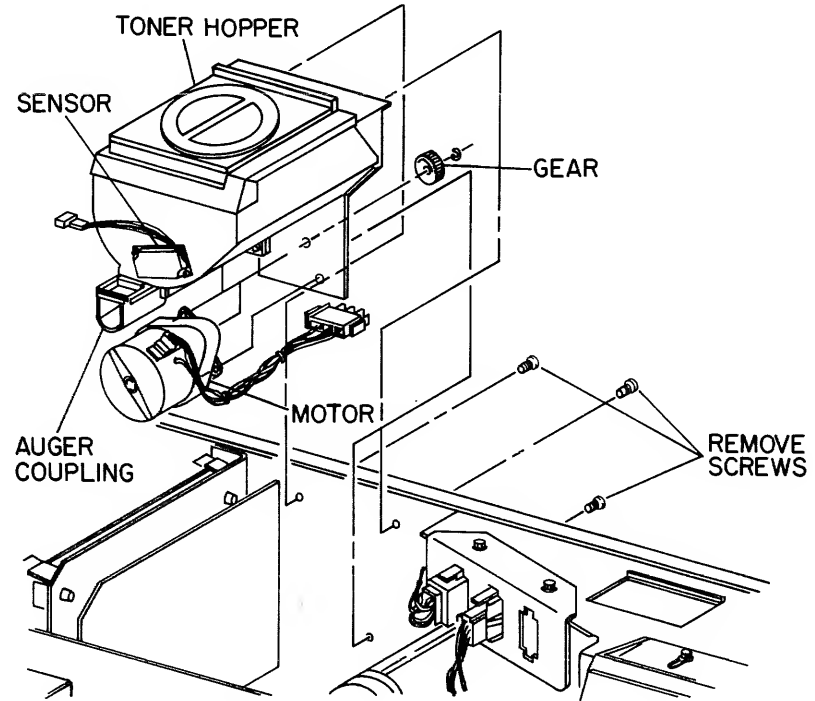
1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE CVT (3-30).
3. REMOVE SIDE/REAR COVER.
4. PLACE PAPER OVER THE REGISTER ROLLERS.
5. SLIDE OUT DRUM MODULE (3-15).
6. REMOVE THREE SCREWS SECURING THE TONER HOPPER TO THE REAR FRAME.
7. REMOVE TONER HOPPER (Figure 3-11).
 - a. Disconnect electrical connectors.
 - b. Push in auger coupling.
 - c. Lift toner hopper out of frame.

REPLACEMENT

1. CLEAN BASE FRAME UNDER TONER HOPPER.
2. INSTALL THREE SCREWS, BUT DO NOT TIGHTEN.
3. SLIDE IN DRUM MODULE, SO THAT THE AUGER MATES WITH THE TONER HOPPER.

CAUTION: DO NOT OVERTIGHTEN THE UPPER MOUNTING SCREWS.

4. TIGHTEN THREE SCREWS SECURING THE TONER HOPPER TO REAR FRAME.
5. ENSURE THAT THE DRUM MODULE SLIDES IN AND OUT WITHOUT BINDING. IF BINDING OCCURS, REPEAT STEPS 2 THROUGH 4.



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Figure 3-11. Toner Hopper

TONER SENSOR (Parts List on 4-8)

REMOVAL

1. REMOVE TONER HOPPER (3-18).
2. REMOVE TWO SCREWS SECURING THE SENSOR TO THE TONER HOPPER.

TONER MOTOR (Parts List on 4-8)

REMOVAL

1. REMOVE TONER HOPPER (3-18).
2. REMOVE E-RING SECURING THE TONER MOTOR DRIVE GEAR.
3. REMOVE DRIVE GEAR.
4. CUT CABLE TIES.
5. REMOVE TWO SCREWS SECURING THE TONER MOTOR TO THE TONER HOPPER.

REPLACEMENT

INSTALL NEW CABLE TIRE ON HARNESS.

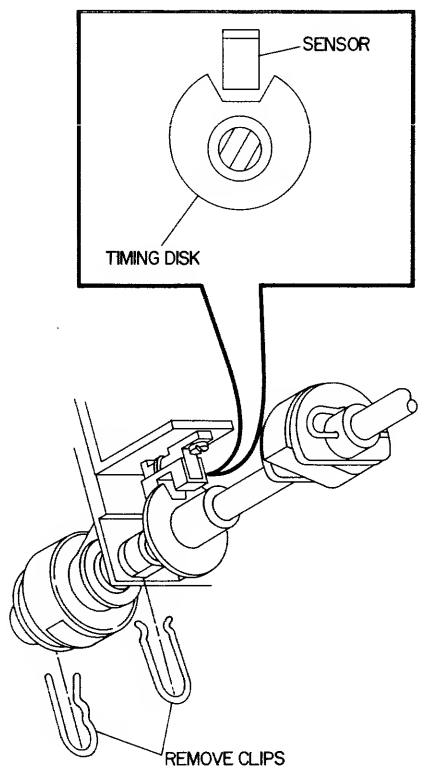
SEGMENT ROLL ASSEMBLY (Parts List on 4-5)

REMOVAL

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. SLIDE OUT DRUM MODULE (3-15).
3. REMOVE RETAINING CLIPS (Figure 3-11).
4. REMOVE CLIP FROM FRONT SEGMENT ROLLER.
5. REMOVE FRONT E-RING, SPRING AND BEARING.

CAUTION: ENSURE THAT THE CUTOUT IN THE TIMING DISK IS ALIGNED WITH THE HOME POSITION SENSOR TO PREVENT DAMAGE WHILE REMOVING THE SHAFT.

6. SLIDE SEGMENT ROLL SHAFT TOWARD FRONT TO REMOVE.



UV02-701

Figure 3-12. Segment Roll Assembly

FEED CLUTCH AND BELT (Parts List on 4-5)

REMOVAL

1. REMOVE SEGMENT ROLL ASSEMBLY.
2. DISCONNECT P/J 32 AND CUT CABLE TIES.
3. REMOVE CLUTCH, CLUTCH PULLEY AND BELT.

REPLACEMENT

ENSURE THAT CLUTCH IS ENGAGED WITH TAB ON DRIVE MOTOR FRAME SO THAT CLUTCH HOUSING WILL REMAIN STATIONARY.

CAUTION: ENSURE THAT THE CLUTCH WIRING IS CORRECTLY POSITIONED AND THAT CABLE TIES ARE INSTALLED.

SEGMENT ROLLS (Parts List on 4-5)

REMOVAL

1. REMOVE SEGMENT ROLL ASSEMBLY (3-20).
2. REMOVE CLIPS AND SLIDE SEGMENT ROLLS OFF OF SHAFT.

REPLACEMENT

ENSURE THAT THE SEGMENT ROLLS ARE POSITIONED CORRECTLY (Figure 3-13).

- a. The collars and clips are facing toward the center of the shaft.
- b. The high point of the segments are aligned with the cutout in the timing disk.
- c. The front roller is located in the proper hole.

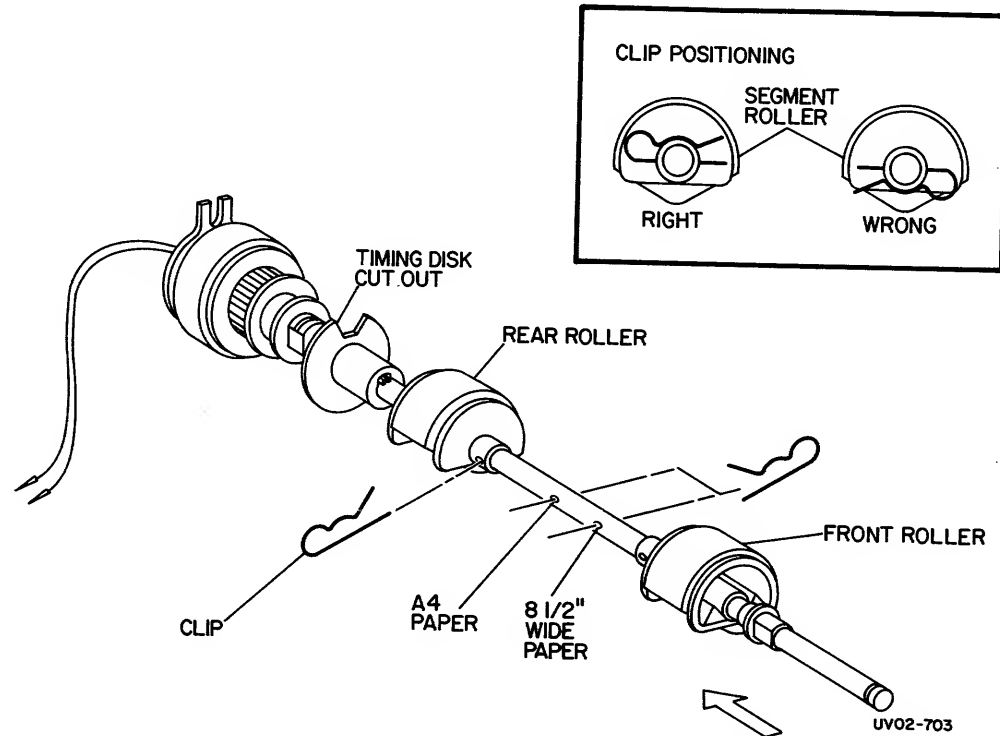


Figure 3-13. Segment Rolls

DOCTOR BLADE ASSEMBLY (Parts List on 4-10)

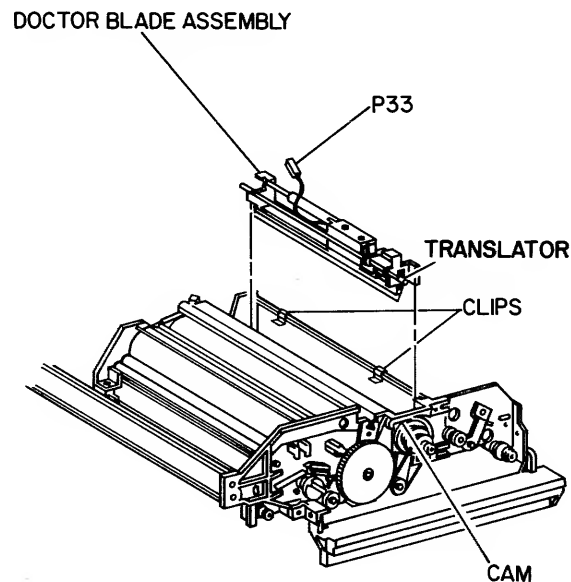
REMOVAL

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. SLIDE DRUM MODULE OUT ON RAILS (3-15).
3. REMOVE SCOROTRON ASSY.
4. SLIDE HOLD DOWN CLIPS TOWARD CENTER OF DRUM MODULE (Figure 3-14).
5. DISCONNECT P/J 33 AND LIFT OUT DOCTOR BLADE ASSEMBLY.

REPLACEMENT

1. ENSURE THAT DOCTOR BLADE TRANSLATOR IS ENGAGED WITH CAM (Figure 3-14).

NOTE: The Hold Down Clips are used to hold the Doctor Blade Assembly in place during shipping only.



UV02-908

Figure 3-14. Doctor Blade Assembly

DOCTOR BLADE (Parts List on 4-10)

REMOVAL

1. REMOVE DOCTOR BLADE ASSEMBLY.
2. REMOVE DOCTOR BLADE FROM CHANNEL.

REPLACEMENT

NOTE: Both edges of the same side of the doctor blade can be used. Cut a notch on the worn edge of the blade and then replace it with the unused edge against the drum.

1. APPLY ZINC STEARATE TO THE NEW BLADE.
2. INSTALL BLADE SO THAT PRINTED SURFACE IS TOWARD DRUM.
3. ENSURE THAT DOCTOR BLADE IS FULLY SEATED AND CENTERED IN THE CHANNEL.
4. ENSURE THAT DOCTOR BLADE TRANSLATOR IS ENGAGED WITH CAM.

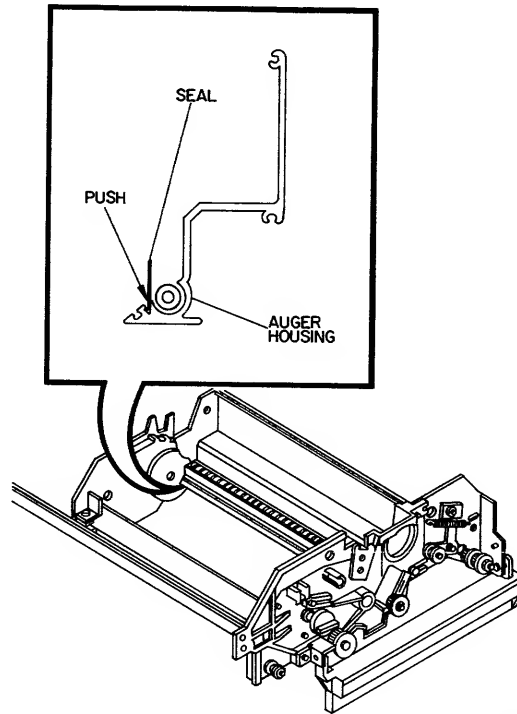
LOWER SEAL (Parts List on 4-10)**REMOVAL**

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE DRUM (3-16).
3. PLACE DROP CLOTH BELOW DRUM MODULE.
4. REMOVE LOWER SEAL FROM CHANNEL.

REPLACEMENT

NOTE: The Lower Seal is designed to prevent toner from leaking past the Drum onto the paper path. Ensure that the edge of the Seal is straight when installed and that there are no sharp edges

1. THOROUGHLY CLEAN THE CHANNEL.
2. INSTALL THE ENDS OF THE SEAL INTO THE CHANNEL FIRST WITH THE LIP TOWARD THE DRUM. (Figure 3-15).
3. USE A SIX INCH RULE TO GENTLY PUSH THE NEW SEAL INTO THE CHANNEL.
4. SLIDE SEAL TOWARDS REAR OF DRUM MODULE.



UV02-912

Figure 3-15. Installing Lower Seal

CLEANING AUGER (Parts List on 4-10)

REMOVAL

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. PLACE DROP CLOTH IN FRONT OF DRUM MODULE.
3. REMOVE DRUM PULLEY.
 - a. Loosen idler and remove timing belt.
 - b. Unscrew drum pulley.
4. REMOVE AUGER DRIVE BELT (Figure 3-16).
5. REMOVE PULLEY BLOCK.
6. REMOVE TRANSLATOR DRIVE BELT.
7. REMOVE AUGER SLOWLY WHILE ROTATING IT IN A COUNTER CLOCKWISE DIRECTION.

REPLACEMENT

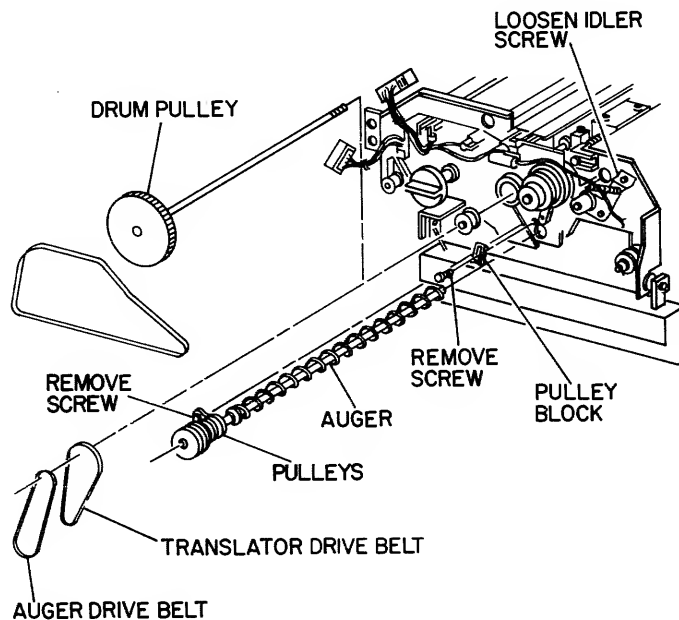
1. INSTALL THE AUGER AND PULLEY ASSEMBLY.

NOTE: The pulley block must be installed before the drive belts to insure that the auger shaft remains straight and rotates freely.

2. INSTALL THE PULLEY BLOCK SO THAT IT JUST TOUCHES THE PULLEY SHAFT.

NOTE: The auger and translator drive belts are not the same length. The translator drive belt is the longer belt.

3. INSTALL REMAINING DRIVE COMPONENTS AND CHECK FOR SMOOTH ROTATION OF AUGER.



UV02-905

Figure 3-16. Auger Removal

FUSER HEATER ROD (Parts List on 4-11)**REMOVAL****WARNING: HEATED SURFACE.**

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE FUSER.
 - a. Remove Pre-Fuser Baffle.
 - b. Release the rear Hold-Down Clip.
 - c. Lift out Fuser and disconnect P/J 20
3. REMOVE FRONTEND CAP (Figure 3-17).
4. LOOSEN SCREW SECURING HEATER ROD TERMINAL AND WIRE.
5. REMOVE HEATER ROD.

REPLACEMENT

Position the Heater Rod towards the top of the reflector, away from the Quartz Shield.

When installing the Pre-Fuser Baffle, push down on the Baffle while tightening screws.

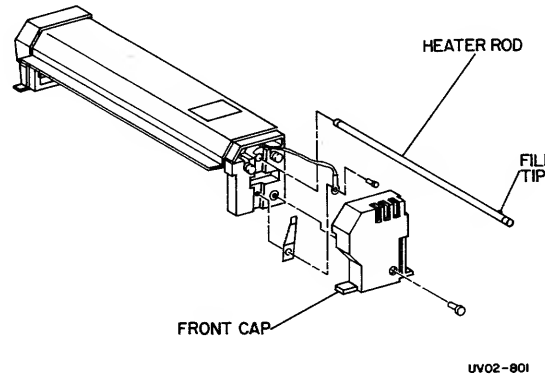


Figure 3-17. Heater Rod Removal

QUARTZ SHIELD (Parts List on 4-11)**REMOVAL****WARNING: HEATED SURFACE.**

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE HEATER ROD.
3. REMOVE FUSER BASE.
4. REMOVE FRONT END BLOCK.
5. REMOVE SHIELD.

REPLACEMENT

Perform Fuser Alignment. (3-48)

OVERHEAT FUSE (Parts List on 4-11)

REMOVAL

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE FUSER ASSEMBLY.
3. REMOVE REAR FUSER CAP (Figure 3-18).
4. REMOVE SCREW SECURING THE REAR HEATER ROD TERMINAL AND WIRES.
5. REMOVE REAR END BLOCK.
6. REMOVE CONNECTOR PIN 3 FROM J20 USING TOOL EXTRACTOR BODY, 600T918, WITH ADAPTER 600T922..
7. REMOVE OVERHEAT FUSE FROM UPPER REFLECTOR.

REPLACEMENT

Perform Fuser Alignment (3-48).

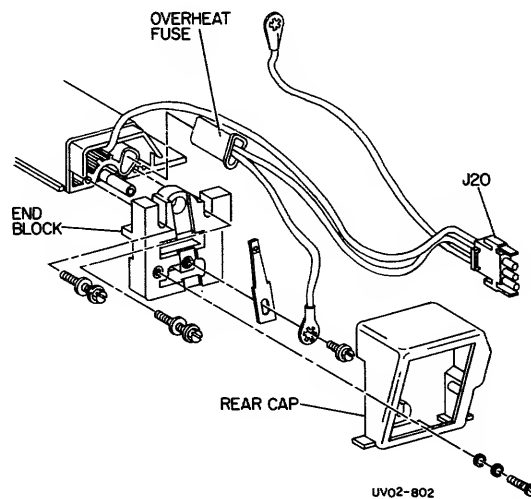


Figure 3-18. Overheat Fuse

IOTC (Parts List on 4-12)

REMOVAL

NOTE: If the ADC circuit on the existing IOTC PWB is functioning properly, perform step 1. If the ADC circuit has failed, skip step 1 and adjust ADC after installing the new IOTC PWB.

1. READ AND RECORD THE ADC "SIGNAL" ON THE EXISTING IOTC PWB.
 - a. Set DMM to 20 VDC.
 - b. Place black lead (COM.) in test point 8, "REF", on the IOTC.
 - c. Place red lead (V-OHM) in test point 7, "SIG", of the IOTC.
 - d. Record DMM reading for later use.
2. SWITCH POWER OFF, DISCONNECT POWER CORD.
3. REMOVE IOTC PWB.
 - a. Remove ROS.
 - b. Disconnect electrical connectors.
 - c. Remove EPROM.

REPLACEMENT

1. SET DIP SWITCHES FOR "SOS DLY", "PAPER REG", "ROS REG" AND F1/F2 ON THE NEW IOTC TO MATCH THE SWITCHES ON THE OLD IOTC.
2. INSTALL EPROM IF NECESSARY.

3. INSTALL NEW IOTC PWB AND CONNECT ALL ELECTRICAL PLUGS.
4. INSTALL ROS AND SWITCH POWER ON.
5. SETUP DMM AS IN STEP 1 ABOVE.
6. ADJUST R51 ON IOTC TO OBTAIN VOLTAGE RECORDED IN STEP 1.

EPROM's

REMOVAL

Use tool 600T80020 to remove EPROM's from IOTC, MPU/IG, or C-VIDEO PWB.

REPLACEMENT

Install EPROM so that EPROM notch is toward carrier notch. See Figure 3-19.

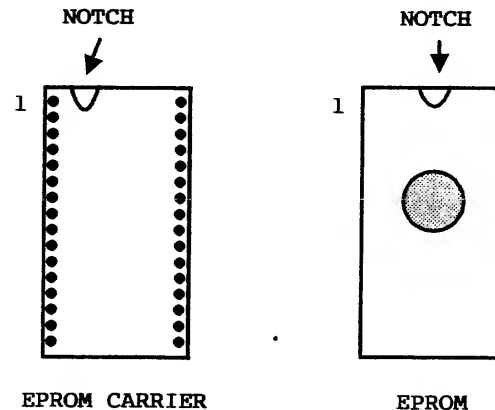


Figure 3-19. EPROM Installation

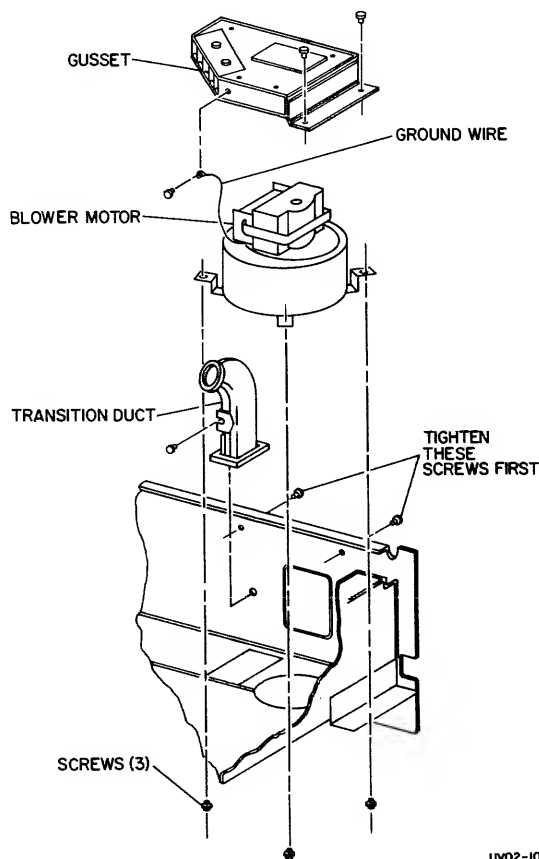
BLOWER MOTOR (Parts List on 4-2)

REMOVAL

CAUTION: THIS PROCEDURE REQUIRES THE REMOVAL OF THE RIGHT REAR FRAME GUSSET. TO ENSURE THAT THE FACTORY SET FRAME ALIGNMENT IS NOT DISTURBED, FOLLOW THIS PROCEDURE EXACTLY AS WRITTEN.

WARNING: TO RELIEVE UPPER FRAME STRESSES WHILE THE GUSSET IS REMOVED, THIS PROCEDURE REQUIRES REMOVAL OF BOTH GAS SPRINGS. TO PREVENT PERSONAL INJURY PERFORM THESE STEPS EXACTLY AS WRITTEN.

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE SIDE/REAR COVER.
3. REMOVE CVT (3-30).
4. REMOVE DRUM MODULE (3-15).
5. REMOVE SUMP.
6. REMOVE TRANSITION DUCT (Figure 3-20).



7. REMOVE THREE SCREWS SECURING THE BLOWER MOTOR.

8. DISCONNECT GAS SPRINGS.

NOTE: The right gas spring alone will hold the upper frame in the open position.

- a. With machine open, unclip and disconnect the left gas spring (refer to Figure 3-21, on next page).
- b. While holding the upper frame with one hand, disconnect the right gas spring and gently lower the upper frame.

CAUTION: DO NOT RAISE UPPER FRAME WHILE GUSSET IS REMOVED.

9. REMOVE GUSSET.
 - a. Remove control panel.
 - b. Remove ground wire.
 - c. Remove four mounting screws.
 - d. Disconnect P/J 16.

10. DISCONNECT P/J 15 AND REMOVE BLOWER.

(Continued on following page)

Figure 3-20. Blower Motor Removal

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BLOWER MOTOR (Continued from previous page)**REPLACEMENT**

CAUTION: DO NOT RAISE UPPER FRAME UNTIL GUSSET IS REINSTALLED.

1. PLACE BLOWER ASSEMBLY IN MOUNTING POSITION.
2. CONNECT P/J 15.
3. INSTALL GUSSET.
 - a. Tighten the two screws through the rear frame first.
 - b. Tighten the two screws through the side frame.
4. RAISE UPPER FRAME AND CONNECT RIGHT AND LEFT GAS SPRINGS.
5. INSTALL THREE BLOWER MOUNTING SCREWS.
6. INSTALL TRANSITION DUCT AND RESTORE PRINTER.

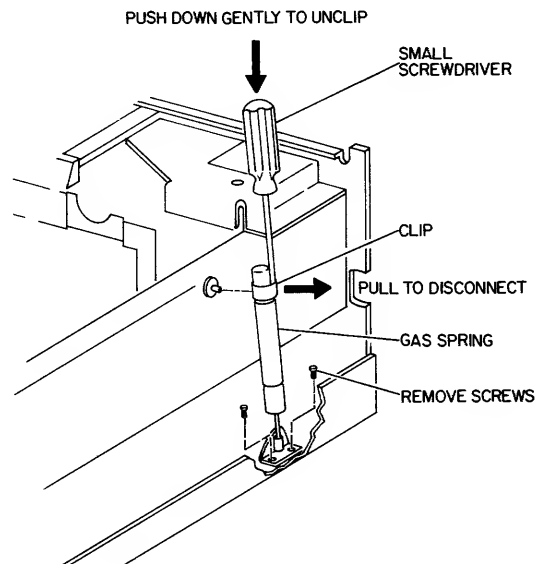


Figure 3-21. Gas Spring Removal

GAS SPRINGS (Parts List on 4-1)**REMOVAL**

WARNING: TO PREVENT PERSONAL INJURY OR MACHINE DAMAGE, FOLLOW THIS PROCEDURE EXACTLY AS WRITTEN.

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE OUTPUT TRAY AND SIDE/REAR COVER.
3. REMOVE CVT (3-30).
4. REMOVE DRUM MODULE (3-15).
5. UNLATCH AND RAISE UPPER FRAME.

WARNING: IF GAS SPRINGS ARE WEAK THE MACHINE MAY CLOSE WHEN ONE GAS SPRING IS DISCONNECTED. KEEP HANDS OR OTHER OBJECTS OUT OF MACHINE WHILE PERFORMING THE FOLLOWING.

6. UNCLIP AND DISCONNECT THE LEFT GAS SPRING (Figure 3-21).
7. WHILE HOLDING UPPER FRAME WITH ONE HAND, DISCONNECT THE RIGHT GAS SPRING AND LOWER THE UPPER FRAME.
8. REMOVE SCREWS SECURING GAS SPRINGS TO BOTTOM FRAME.

NOTE: The Spring for the right side is stronger and has a white stripe on it.

CVT (Parts List on 4-7)

REMOVAL

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. REMOVE ROS.

CAUTION: FAILURE TO REMOVE THE OPTICS INTAKE DUCT WILL DAMAGE THE EXPOSURE LAMP.

3. REMOVE OPTICS INTAKE DUCT.
4. DISCONNECT ELECTRICAL CONNECTORS.
5. REMOVE CVT.

REPLACEMENT

CAUTION: PROTECT THE TRANSITION DUCT SEAL BY PLACING A PIECE OF PAPER OVER IT BEFORE INSTALLING THE CVT.

TO PREVENT THE CVT FROM ROCKING, ADJUST THE HEX HEAD SCREW AT THE RIGHT REAR CORNER OF THE CVT TO REMOVE PLAY.

CLUTCH (Parts List on 4-7)

REMOVAL

1. REMOVE CVT.
2. REMOVE CLUTCH SHIELD (Figure 3-22).
3. LOOSEN BELT IDLER.
4. REMOVE CLUTCH ASSEMBLY.
 - a. Remove clip.
 - b. Remove cable ties.

REPLACEMENT

- o Ensure that the cutout on the Clutch Housing is located on the tab of the Clutch Shield.

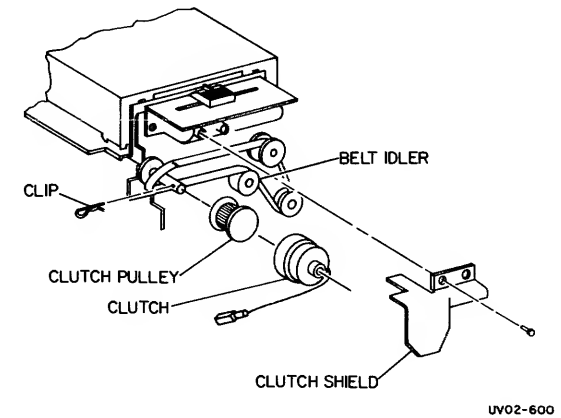


Figure 3-22. CVT Clutch Removal

CVT COVER (Parts List on 4-7)

REMOVAL

1. REMOVE CVT (3-30).
2. REMOVE EXPOSURE SLIDE (Figure 3-23).
3. REMOVE COVER ASSEMBLY.

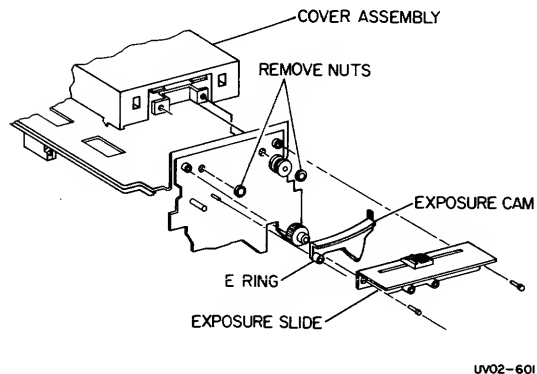


Figure 3-23. CVT Cover Removal

EXPOSURE LAMP AND OPTICS FILTER
(Parts List on 4-6)

REMOVAL

1. REMOVE CVT (3-30).
2. DISCONNECT EXPOSURE LAMP WIRING AND CABLE TIES.

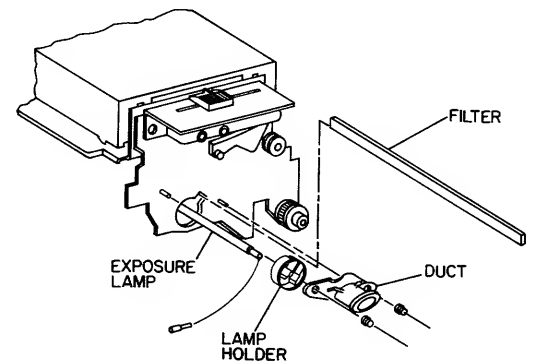
CAUTION: THE REAR DUCT IS USED TO RETAIN THE OPTICS FILTER. AFTER REMOVING THE DUCT, DO NOT ALLOW THE FILTER TO FALL OUT OF THE OPTICS CAVITY.

3. REMOVE REAR DUCT FROM REAR OF CVT FRAME (Figure 3-24).
4. SLIDE OPTICS FILTER OUT OF OPTICS CAVITY.
5. REMOVE EXPOSURE LAMP.
 - a. Remove front seal.
 - b. Remove front and rear lamp holder.
 - c. Remove lamp from optics cavity.

NOTE: The front and rear lamp holders are not interchangeable; the front holder has an identifying hole in it. Also, the lamp holders are installed with their openings toward the filter.

REPLACEMENT

THE SHORT LEAD OF THE LAMP SHOULD BE TOWARD THE FRONT OF THE CVT.



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Figure 3-24. Exposure Lamp/Filter Removal

PLATEN GLASS (Parts List on 4-6)

REMOVAL

1. RAISE CVT COVER.
2. REMOVE TWO SCREWS SECURING THE LOWER DOCUMENT BAFFLE.
3. RAISE THE FRONT OF DOCUMENT BAFFLE SLIGHTLY AND SLIDE THE PLATEN GLASS OUT OF CVT.

REPLACEMENT

INSTALL THE PLATEN WITH THE WHITE MARK FACING DOWN AND TOWARD THE FRONT.

BE SURE THE PLATEN IS PUSHED IN ALL THE WAY BEFORE TIGHTENING THE DOCUMENT BAFFLE.

DOCUMENT REGISTRATION SENSOR OR OVERHEAT FUSE
(Parts List on 4- 7)

REMOVAL

1. REMOVE PLATEN GLASS.
2. REMOVE CVT COVER (3-31).
3. REMOVE STAPLE TRAY.
4. SEPARATE DOCUMENT BAFFLE FROM OPTICS HOUSING.
5. REMOVE SENSOR OR FUSE FROM DOCUMENT BAFFLE.

INPUT DRIVE ROLLER (Parts List on 4-7)

REMOVAL

1. REMOVE CVT (3-30).
2. REMOVE PLATEN GLASS.
3. REMOVE CVT COVER (3-31).
4. REMOVE CVT CLUTCH (3-30). (Do not remove the cable ties).
5. REMOVE INPUT DRIVE ROLLER.

OUTPUT DRIVE ROLLER (Parts List on 4-7)

REMOVAL

1. REMOVE CVT (3-30).
2. REMOVE PLATEN GLASS (3-32).
3. REMOVE CVT COVER (3-31).
4. REMOVE DRIVE BELT FROM OUTPUT DRIVE ROLLER PULLEY.
5. REMOVE OUTPUT DRIVE ROLLER.

LOW VOLTAGE POWER SUPPLY (Parts List on 4-12)

REMOVAL

1. SWITCH POWER OFF, REMOVE POWER CORD.
2. REMOVE SIDE/REAR PANEL.
3. REMOVE ROS ASSEMBLY.

NOTE: Unclip and raise Power Switch to provide access to screw on Terminal Block E 19.

NOTE: RX ONLY

Before disconnecting primary leads from Transformer, make a note of tap being used.

4. DISCONNECT WIRING (Figure 3-25).
 - o Brown and Blue wires from transformer primary.
 - o P1 and P3 from MPU/IG (or C-Video) and IOTC PWB's.
 - o Ground wires from E 19. The Green/Yellow Safety Ground is attached with a screw.
5. REMOVE SCREWS AND LIFT OUT THE LVPS.

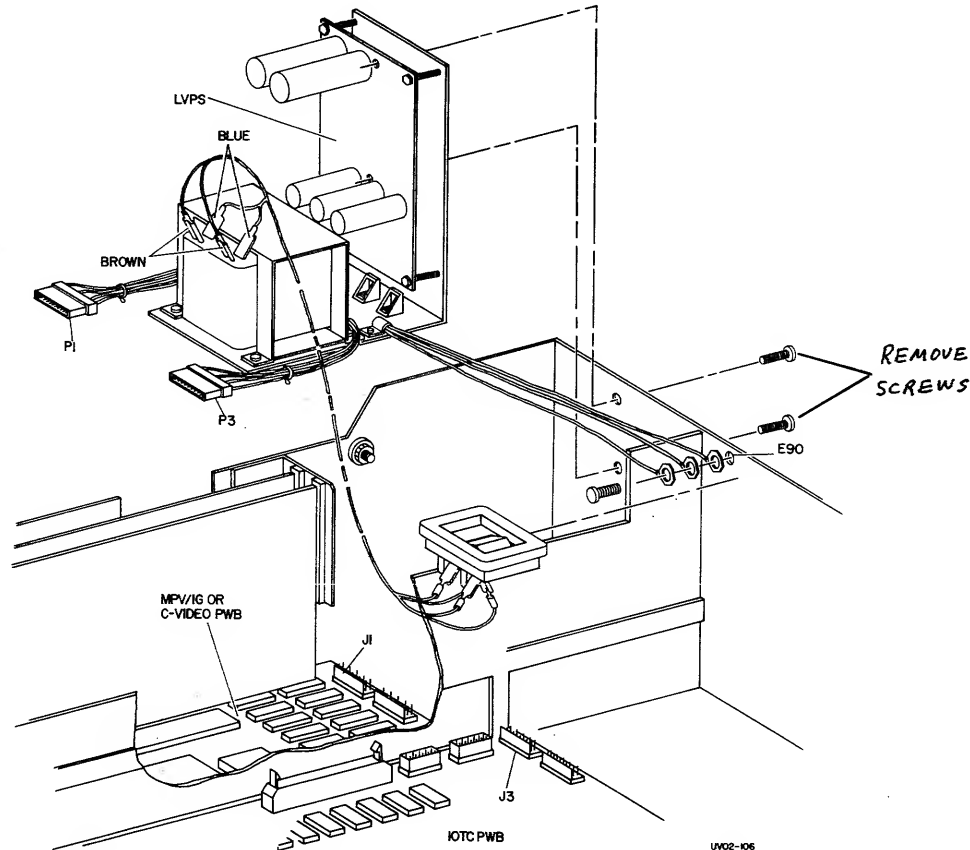


Figure 3-25. Low Voltage Power Supply

ROS COMPONENTS (Parts List on 4-13)

This procedure describes the disassembly of the ROS Unit into its component parts.

Cover Assembly (with PWB)
Window Assembly
Polygon Motor Assembly
Laser Diode Assembly

See Figure 3-26 for assembly details.

ROS WINDOW REMOVAL

REMOVE 5.5MM CAP SCREWS TO REMOVE THE WINDOW.
(Figure 3-26).

REPLACEMENT

NOTE: Before installing window, clean with a cleaning pad and Lens Cleaner.

CAUTIONS:

- o Ensure that no finger marks are on the the window. Any marks will appear as Print Quality problems.
- o Ensure that the gold mirrored surface is installed toward the Start of Scan (SOS) Detector. The mirror will appear silver on the outside when properly installed. Figure 3-26.

ROS COVER REMOVAL

1. REMOVE THE ROS ASSEMBLY FROM THE PRINTER AND PLACE ON A FLAT SURFACE.
2. DISCONNECT P2 AND P3 FROM THE ROS PWB.
3. REMOVE THE 7MM CAP SCREWS (Figure 3-26).

CAUTION: Do not twist or bend the cover while removing it. The Start of Scan (SOS) Detector can be damaged.

4. REMOVE COVER BY LIFTING STRAIGHT UP.

CAUTION: Leave the unit sitting on the flat surface. The Laser Diode Assembly is not attached to the base and could fall out if the base were tilted.

ROS COVER REPLACEMENT

CAUTIONS:

- o **DO NOT** force or bend the ROS cover during the replacement process to avoid damage to the Start of Scan (SOS) Detector.
- o **DO NOT** overtighten the screws. The threads may strip in the base casting.

NOTE: The long screw goes in hole nearest the Start of Scan Detector.

POLYGON MOTOR ASSEMBLY REMOVAL

NOTE: Do not disassemble the Polygon Motor Assembly. Do not attempt to clean the mirror surfaces with any type of cleaning material. The surface coating will be destroyed.

CAUTION:

- o Support the ROS Base Casting as you remove the screws holding the Polygon Motor Assembly (Figure 3-26). The base will drop when you remove the last screw.
- o When removing the Polygon Motor Assembly, do not allow the Motor Housing or the wiring to damage the lens.

LASER DIODE ASSEMBLY REMOVAL

CAUTION:

- o The Laser Diode Assembly is not secured to the base. It can be damaged if you tilt the base.
- o Do not force the Assembly onto or off of the locating pin (Figure 3-26). Permanent damage to the pin or case may occur.
- o Use care when removing or replacing the Laser Diode Assembly so that it does not damage the lens.

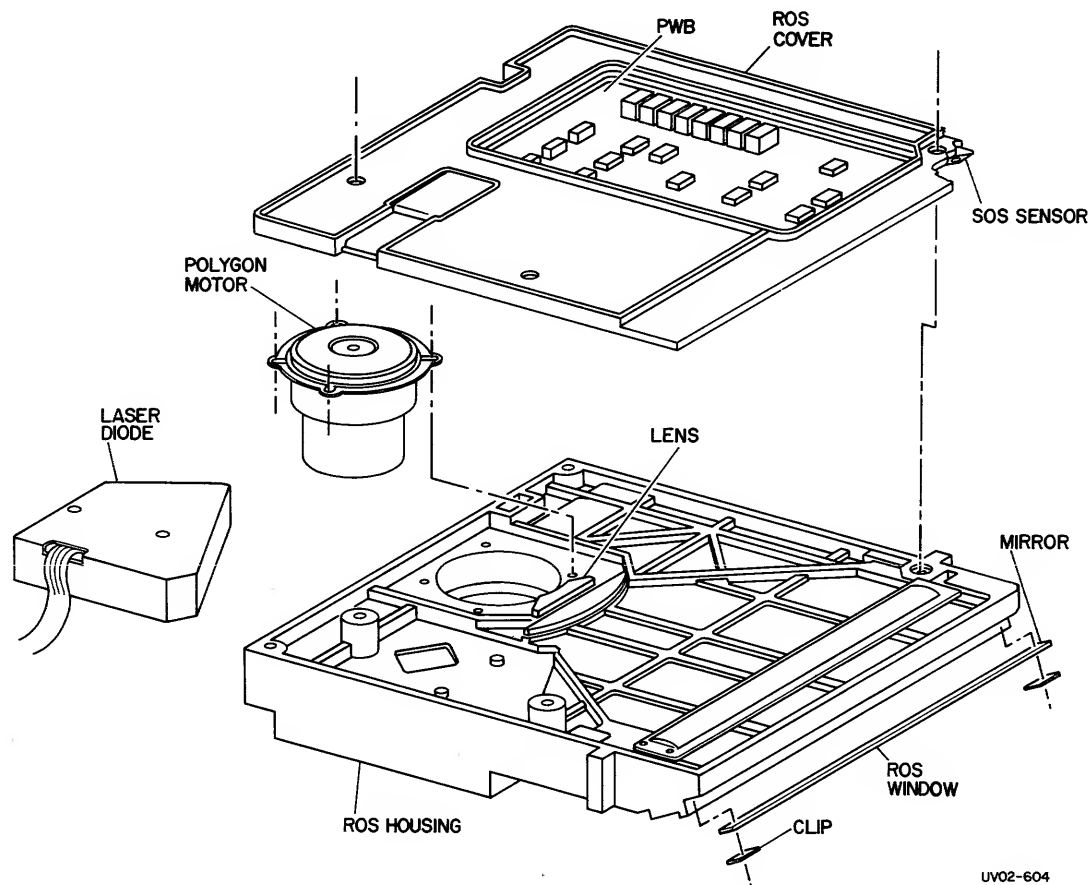


Figure 3-26. ROS Components

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ADJUSTMENTS ELECTROSTATIC SERIES

ELECTROSTATICS

TRANSFER/DETACK SHIELD VOLTAGE

Purpose: To adjust the transfer and detack corotron voltages to their specified value.

NOTE: The DMM cannot be used to read the high voltage on the corotron wires. In this procedure, you will measure an induced voltage on the corotron shields.

1. CLEAN THE TRANSFER/DETACK COROTRONS (3-6).
2. MOVE THE CONTROL PANEL TO THE SERVICE POSITION. (Figure 3-27).
3. SET DMM TO 20VDC AND CONNECT COM PROBE TO FRAME GROUND.

NOTE: If voltages are not present in the following steps, recheck DMM settings and connections, then go to the HVPS RAP 2-52.

CAUTION: DO NOT USE EXCESSIVE DOWNWARD FORCE ON ADJUSTMENT POTS DURING ADJUSTMENT OF THE HVPS.

CAUTION: Ensure meter probes do not contact high voltage areas of the Corotrons.

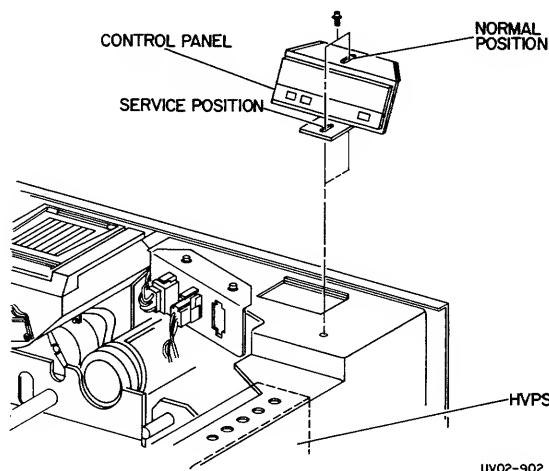


Figure 3-27. Control Panel

4. ADJUST TRANSFER VOLTAGE TO BETWEEN 8.3 AND 8.5 VDC.
 - a. Disconnect the orange detack plug from the HVPS.
 - b. Switch power ON.
 - c. Enter code 71* and press OFF-LINE.
 - d. Place the red DMM probe on the transfer/detack shield.
 - e. Adjust voltage by rotating "T" pot on the HVPS.
 - f. Switch power OFF.
 - g. Reconnect orange detack plug.
5. IF ENVELOPE PRINTING OPTION IS USED, ENTER CODE 72, PRESS OFF-LINE AND CHECK FOR TRANSFER SHIELD VOLTAGE OF 14.5 VDC.
6. ADJUST DETACK VOLTAGE TO BETWEEN 5.2 AND 5.6 VAC.
 - a. Change meter to AC Volts.
 - b. Disconnect the grey transfer lead from the HVPS.
 - c. Switch power ON.
 - d. Enter code 71* and press OFF-LINE.
 - e. Place the red DMM probe on the transfer/detack shield.
 - f. Adjust voltage by rotating "DT" pot on HVPS.
 - g. Switch power OFF.
 - h. Reconnect grey transfer plug.

7. CHECK/ADJUST SCREEN VOLTAGE ON NEXT PAGE.

SCOROTRON SCREEN VOLTAGE

Purpose: To adjust the screen voltage of the charge scorotron to specification. (The charge scorotron current is set via the transfer current adjustment).

1. SET DMM 1000VDC. AND CONNECT COM PROBE TO FRAME GROUND.
2. HOLD V PROBE TO CHARGE SCROTRON SHIELD.
3. ENTER CODE 71*. PRESS OFF-LINE SWITCH.

NOTE: If voltage is not present in the following steps, check wiring and ensure that the Scorotron shield is not grounded. Go to HVPS RAP 2-52 if still unable to read voltage.

CAUTION Do not use excessive downward force on adjustment pots during adjustment of the HVPS.

4. ADJUST "SCREEN" POT ON THE HVPS TO OBTAIN A READING OF BETWEEN 800 AND 840 VDC.
5. CHECK/ADJUST ROS POWER ON NEXT PAGE.

DANGER

LASER - INVISIBLE RADIATION

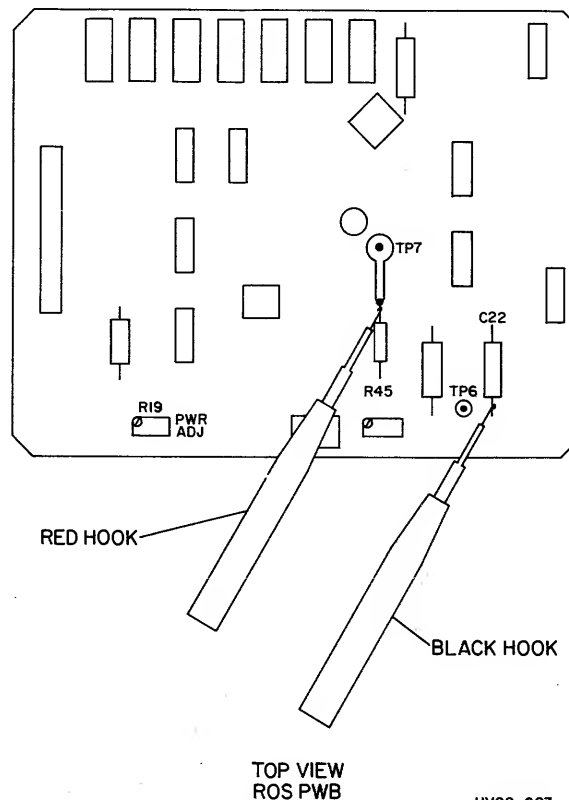
When cover removed and interlock defeated (power cord plugged in) avoid direct exposure to the beam.

**ADJUSTMENTS
ROS POWER****ROS POWER**

Purpose: To adjust the laser beam intensity to obtain the proper amount of exposure level.

NOTE: With a new drum or a drum that has run less than 40 prints/copies within the last 30 minutes, run Diagnostic Code 71* for 4 minutes.

1. CHECK/ADJUST ELECTROSTATICS (3-43).
2. ENTER CODE 42* AND PRESS OFF-LINE.
3. SLOWLY ROTATE "PWR ADJ" POT (R19 on the ROS PWB), COUNTER CLOCKWISE, UNTIL STRUCTURED BACKGROUND JUST APPEARS ON THE TEST PRINT.
4. SET UP DMM.
 - a. Select 2 VDC.
 - b. Connect Spring Wire hooks to components as shown in Figure 3-28.
7. RECORD THE VOLTAGE (Background Voltage).
8. SLOWLY ROTATE "PWR ADJ" POT CLOCKWISE UNTIL ALL FOUR OF THE #1 DIAGONAL LINES ON THE TEST PRINT JUST DISAPPEAR.



UV02-603

Figure 3-28. ROS Power Measurement

9. READ AND RECORD THE VOLTAGE BETWEEN TP6 AND TP7, (Breakup Voltage).
10. CALCULATE THE SET VOLTAGE (EXAMPLE 1).
 - a. Add the voltages recorded in steps 8 and 10 (Background voltage + Breakup voltage).
 - b. Divide the sum in half and record this voltage.

BACKGROUND VOLTAGE: .200VDC

$$\begin{array}{r} \text{BREAKUP VOLTAGE:} \quad .400\text{VDC} \\ + \quad .200\text{VDC} \\ \hline = .600\text{VDC} \end{array}$$

$$\begin{array}{r} \div 2 \\ \hline = .300\text{VDC} \end{array}$$
EXAMPLE 1

11. ADJUST ROS POWER (R19) TO THE SET VOLTAGE CALCULATED IN STEP 10.

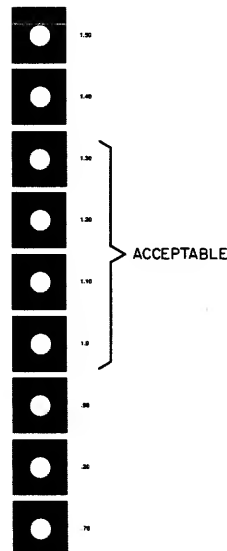
DANGER
LASER INVISIBLE RADIATION
When cover removed and interlock defeated (power cord plugged in) avoid direct exposure to the beam.

AUTOMATIC DENSITY CONTROL (ADC)

Purpose: To set the ADC reference voltage to maintain solid area density.

NOTE: In the following step, if an "OL" code appears go to the OL Status Code RAP (2-54). Also, correct any uneven side-to-side density problems before starting.

1. DETERMINE THE EXISTING SOLID AREA DENSITY (SAD).
 - a. Run 5 print test patterns (code 42*).
 - b. Determine the average SAD of the 5 test patterns (use the lower center SAD target).
 - c. Record the value.
2. DETERMINE THE DIFFERENCE BETWEEN THE EXISTING SAD AND DESIRED SAD (between 1.0 and 1.3).
3. LOCATE THE AMOUNT OF SAD CHANGE REQUIRED (ON TABLE 3-1) AND PERFORM THE CHANGE ACTION TO CORRECT THE SAD.
4. REPEAT STEPS 1 THROUGH 3 UNTIL SAD IS CORRECT.



EXPER 151-N-002-011
OUTPUT REFERENCE
UV05-002

SOLID AREA DENSITY SPECIFICATION

SAD CHANGE DESIRED	TONER CONCENTRATION CHANGE ACTION
Decrease by 0.3	Run 6 Dark Dustings (code 76)
Decrease by 0.2	Run 4 Dark Dustings (code 76)
Decrease by 0.1	Run 2 Dark Dustings (code 76)
Increase by 0.1	Run Tone-up (code 75) for 30 seconds
Increase by 0.2	Run Tone-up (code 75) for 60 seconds
Increase by 0.3	Run Tone-up (code 75) for 90 seconds*
Increase by 0.4	Run Tone-up (code 75) for 2 minutes*
Increase by 0.5	Run Tone-up (code 75) for 1.5 minutes*

* NOTE: Diagnostic Exerciser 75 times out after 60 sec.

Table 3-1. Solid Area Density Correction.

5. SETUP DMM.
 - a. Set DMM to 20VDC.
 - b. Place black DMM probe to TP9 of IOTC PWB.
 - c. Place red DMM probe to TP7 of IOTC PWB.
 - d. Press PEAK HOLD Switch down and set Polarity to +.

6. RUN ADC SETUP TEST

NOTE: First two peak readings will be +8 to +9 VDC (Calibration Voltage). DO NOT RECORD THESE VALUES. If Calibration Voltages are not present, go to OL STATUS CODE RAP (2-54).

- a. Enter Code 22* and press OFF LINE.
- b. Reset PEAK HOLD (push button twice) after each peak reading.

For 11 inch paper:

- c. Record 6 Patch Voltages (+2 to +4 VDC)

For A4 paper:

- c. Record 4 Patch Voltages (+2 to +4 VDC)

7. AVERAGE THE PATCH VOLTAGE READINGS.
 - a. Add voltages.
 - b. Divide total by the number of readings taken.
8. ADJUST THE ADC REFERENCE VOLTAGE TO THE VALUE DETERMINED IN STEP 7.
 - a. Move the red DMM probe to TP 8.
 - b. Switch off Peak Hold.
 - c. Adjust POT R51 on IOTC PWB.

FUSER ALIGNMENT (Part List on 4-11)

PURPOSE: To position the Fuser End Blocks and Pre-fuser Baffle to minimize fuser jams or image smudge.

1. Remove Fuser Assembly (3-25).
2. Remove front and rear End Caps from Fuser.
3. Loosen front and rear End Blocks.
4. Place a .010 in. shim stock between the Quartz shield and both End Blocks. (See Figure 3-29).
5. Place Assembly on level surface and tighten rear End Block.
6. Leave front shim in place and install Fuser Assembly.
7. Position front End Block so that Fuser does not rock and tighten screws.
8. Remove Fuser to slide out front shim, reinstall Fuser and align the Pre-fuser Baffle. (Figure 3-30)

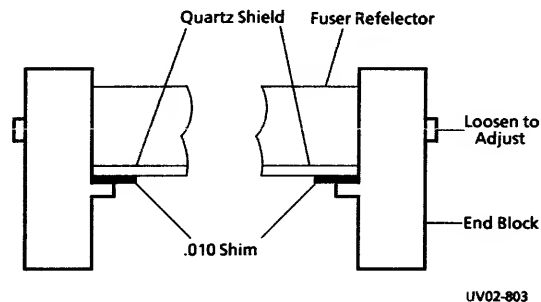


Figure 3-29. Shim Placement

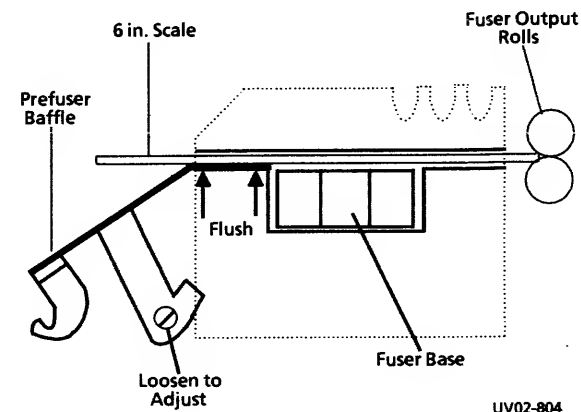
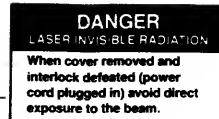


Figure 3-30. Pre-Fuser Baffle Alignment



ADJUSTMENTS DEVELOPMENT/FUSING

DEVELOPER BIAS CHECKOUT PROCEDURE

Purpose: To ensure that the proper bias voltages are available to the bias bar and the mag roll.

1. SET DMM TO 1,000 VDC. AND CONNECT COM PROBE TO FRAME GROUND.
2. ENTER CODE 71* AND PRESS OFF-LINE SWITCH.
3. PLACE RED LEAD ON THE BIAS BAR (Figure 3-31); DMM SHOULD READ BETWEEN -540 AND -660 VDC.
5. PLACE RED LEAD ON THE MAG BRUSH ELECTRODE; DMM SHOULD READ BETWEEN +209 AND +231VDC.
6. PRINTERS WITH THE CVT OPTION:
REPEAT STEP 5 USING DIAGNOSTIC CODE 73*.
VOLTAGE SHOULD READ BETWEEN +263 AND +297VDC
7. IF THE VOLTAGES ARE NOT WITHIN SPEC.,
REPLACE THE HIGH VOLTAGE POWER SUPPLY.
IF THERE ARE NO VOLTAGE READINGS, CHECK
THE WIRING AND CONNECTORS FROM THE HVPS
TO THE DRUM MODULE. ALSO, CHECK THAT THE
ROS HOUSING IS NOT TOUCHING THE DEVELOPER
HOUSING AND GROUNDING THE VOLTAGES.

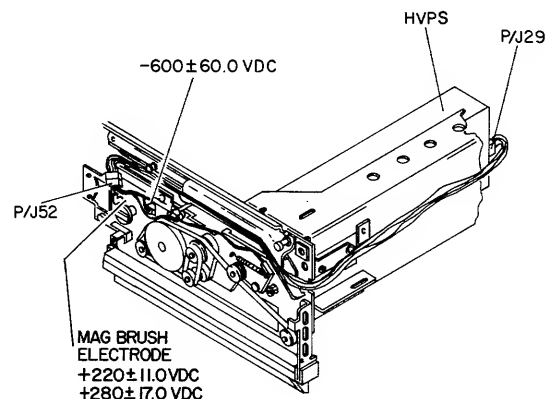


Figure 3-31. Developer Bias Checkout

FUSER POWER

PURPOSE: To adjust fuser AC voltage, so that the heater rod operates at optimum fuser temperature.

1. SWITCH POWER OFF.

CAUTION: IN THE FOLLOWING PROCEDURE USE THE SPRING WIRE HOOK PROBES TO PREVENT SHORTING THE AC DRIVER PWB TO MACHINE FRAME.

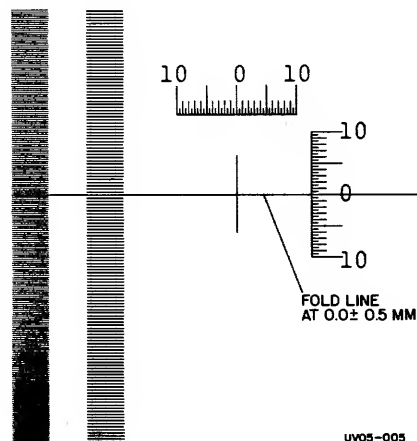
2. SET DMM TO 200VAC.
3. CONNECT RED HOOK PROBE TO TPA OF AC DRIVER PWB.
4. CONNECT BLACK HOOK PROBE TO TPB OF AC DRIVER PWB.
5. SWITCH POWER ON.
6. ENTER CODE 24. PRESS OFF-LINE SWITCH.
7. **US ONLY:** TURN POT R4 ON THE AC DRIVER PWB TO READ BETWEEN 88.5 AND 91.5 VAC
8. **RX ONLY:** TURN POT R4 ON THE AC DRIVER PWB TO READ BETWEEN 170.5 AND 173.5VAC.

TOP-TO-BOTTOM REGISTRATION
 (PRINTERS WITH COPY OPTION)

Purpose: To set paper feed and ROS registration so that top-to-bottom registration of copies and prints will be within specification.

1. SET IOTC S3 SWITCHES, 1 THROUGH 4, TO NOMINAL (0001).
2. MAKE ONE COPY OF TEST PATTERN 82P506.
3. FOLD THE COPY IN HALF TOP-TO-BOTTOM.
4. MEASURE THE DISTANCE FROM THE COPY CENTER REFERENCE LINE TO THE FOLD (Figure 3-32).
5. LOCATE THAT DISTANCE ON TABLE 3-2 AND SET SWITCHES 1 THROUGH 4 ACCORDING TO THE SETTINGS FROM TABLE 3-2.
6. SET POSITIONS 5 THROUGH 8 SO THAT THEY MATCH POSITIONS 1 THROUGH 4.

7. GENERATE A PRINT TEST PATTERN (CODE 42*).
8. FOLD THE PRINT IN HALF TOP TO BOTTOM.
9. MEASURE THE DISTANCE FROM THE CENTER REFERENCE LINE TO THE FOLD.
10. IF THE DISTANCE IS MORE THAN 0.5mm, ADJUST THE SWITCH SETTINGS.



UV05-005

TOP-TO-BOTTOM REGISTRATION TABLE

S3 SWITCH SETTINGS (1= ON)

PAPER REG				ROS REG				MEASUREMENT*
1	2	3	4	5	6	7	8	
1	1	1	1	1	1	1	1	-6.1 mm
0	1	1	1	0	1	1	1	-5.2 mm
1	0	1	1	1	0	1	1	-4.3 mm
0	0	1	1	0	0	1	1	-3.5 mm
1	1	0	1	1	1	0	1	-2.6 mm
0	1	0	1	0	1	0	1	-1.7 mm
1	0	0	1	1	0	0	1	-0.8 mm
0	0	0	1	0	0	0	1	0.0 Nominal
1	1	1	0	1	1	1	0	+0.9 mm
0	1	1	0	0	1	1	0	+1.8 mm
1	0	1	0	1	0	1	0	+2.7 mm
0	0	1	0	0	0	1	0	+3.6 mm
1	1	0	0	1	1	0	0	+4.4 mm
0	1	0	0	0	1	0	0	+5.3 mm
1	0	0	0	1	0	0	0	+6.2 mm
0	0	0	0	0	0	0	0	+7.1 mm

*(-) Fold is below center line.

*(+) Fold is above center line.

TABLE 3-2

Figure 3-32. Top-to-bottom Registration Spec

DANGER
LASER INVISIBLE RADIATION

When cover removed and interlock defeated (power cord plugged in) avoid direct exposure to the beam.

ADJUSTMENTS
REGISTRATION

TOP-TO-BOTTOM REGISTRATION
(PRINTERS WITHOUT COPY OPTION)

Purpose: To set ROS registration so that top-to-bottom registration of prints will be within specification.

- 1. SET IOTC S3 SWITCHES, 1 THROUGH 4, TO NOMINAL (0001).
- 2. SET IOTC S3 SWITCHES, 5 THROUGH 8, TO NOMINAL (0001).
- 3. GENERATE A PRINT TEST PATTERN (CODE 42*).
- 4. FOLD THE PRINT IN HALF TOP TO BOTTOM (Fig 3-32a).
- 5. MEASURE THE DISTANCE FROM THE CENTER REFERENCE LINE TO THE FOLD.
- 6. IF THE DISTANCE IS MORE THAN 0.5mm, ADJUST THE SWITCH SETTINGS.

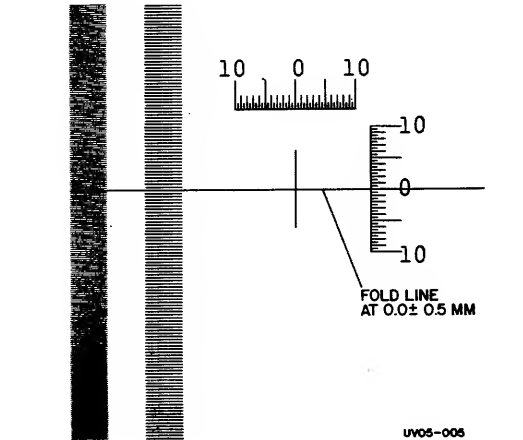


Figure 3-32. Top-to-Bottom Registration Spec

TOP-TO-BOTTOM REGISTRATION TABLE

S3 SWITCH SETTINGS (1= ON)

PAPER REG				ROS REG				MEASUREMENT*
1	2	3	4	5	6	7	8	
1	1	1	1	1	1	1	1	+6.1 mm
0	1	1	1	0	1	1	1	+5.2 mm
1	0	1	1	1	0	1	1	+4.3 mm
0	0	1	1	0	0	1	1	+3.5 mm
1	1	0	1	1	1	0	1	+2.6 mm
0	1	0	1	0	1	0	1	+1.7 mm
1	0	0	1	1	0	0	1	+0.8 mm
0	0	0	1	0	0	0	1	0.0 Nominal
1	1	1	0	1	1	1	0	-0.9 mm
0	1	1	0	0	1	1	0	-1.8 mm
1	0	1	0	1	0	1	0	-2.7 mm
0	0	1	0	0	0	1	0	-3.6 mm
1	1	0	0	1	1	0	0	-4.4 mm
0	1	0	0	0	1	0	0	-5.3 mm
1	0	0	0	1	0	0	0	-6.2 mm
0	0	0	0	0	0	0	0	-7.1 mm

*(-) Fold is below center line.
(+) Fold is above center line.

TABLE 3-3

SIDE-TO-SIDE REGISTRATION

PRINT MODE

NOTE: Ensure that first surface of SOS Mirror (on ROS Window) is facing the SOS Sensor.

1. SET IOTC S2 SWITCHES, 1 THROUGH 4, TO NOMINAL (0001).
2. GENERATE A PRINT TEST PATTERN (CODE 42*).
3. FOLD THE COPY IN HALF SIDE-TO-SIDE.
4. MEASURE THE DISTANCE FROM THE COPY CENTER REFERENCE LINE TO THE FOLD (Figure 3-33).
5. REFER TO TABLE 3-4 AND SET THE SOS DELAY SWITCHES ACCORDING TO THE VALUE FROM STEP 4.

COPY MODE

1. ADJUST PRINT MODE SIDE-TO-SIDE REGISTRATION.
2. MAKE ONE COPY OF TEST PATTERN 82P506.
3. FOLD THE COPY IN HALF (SIDE TO SIDE).
4. ADJUST THE DOCUMENT EDGE GUIDE TO LOCATE THE FOLD AT THE +2.5 MM MARK OF THE COPY ± 0.5 MM (Fig. 3-33).

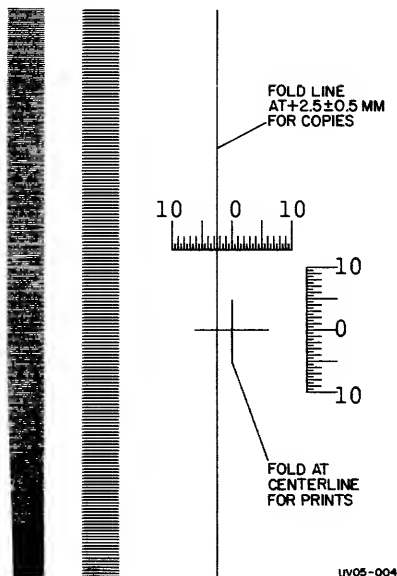


Figure 3-33. Side-to-Side Registration Spec

SIDE-TO-SIDE REGISTRATION TABLE

S2 SWITCH SETTINGS (1= ON)

SOS DLY	MEASUREMENT*
1 2 3 4	
1 1 1 1	-4.4 mm
0 1 1 1	-3.8 mm
1 0 1 1	-3.1 mm
0 0 1 1	-2.5 mm
1 1 0 1	-1.9 mm
0 1 0 1	-1.3 mm
1 0 0 1	-0.6 mm
0 0 0 1	0.0 mm NOMINAL PRINT
1 1 1 0	+0.6 mm
0 1 1 0	+1.3 mm
1 0 1 0	+1.9 mm
0 0 1 0	+2.5 mm Nominal COPY
1 1 0 0	+3.2 mm
0 1 0 0	+3.8 mm
1 0 0 0	+4.4 mm
0 0 0 0	+5.0 mm

*(+) Fold is to the right of the center line.
(-) Fold is to the left of the center line.

TABLE 3-4

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DOCTOR BLADE SOLENOID

Purpose: To ensure that the doctor blade will touch the drum when the solenoid is energized, and not touch the drum when the solenoid is de-energized.

PROCEDURE

1. REMOVE THE CVT (3-30).
2. REMOVE THE CHARGE SCOROTRON.
3. SLIDE DRUM MODULE BACK INTO MACHINE AND RECONNECT P/J 26.
4. PLACE A SHEET OF PAPER OVER THE DRUM.
5. ENERGIZE THE SOLENOID.
 - a. Switch power ON.
 - b. Enter component code 96.
 - c. Press OFF-LINE switch.

NOTE: USE 5MM SHIM STOCK IN THE FOLLOWING TWO STEPS.

6. POSITION THE SOLENOID TO OBTAIN A GAP OF 0.5 ± 0.1 MM AT THE END OF THE PLUNGER (Figure 3-34).
7. ROTATE THE SET SCREW TO OBTAIN A GAP OF 1.0 ± 0.15 MM BELOW THE SET SCREW.

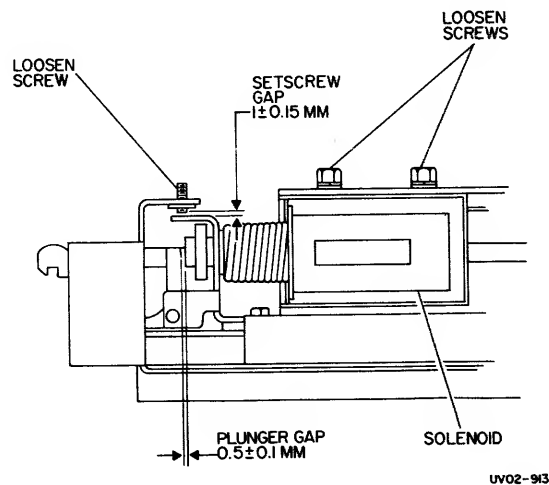


Figure 3-34. Solenoid Adjustment

LATCH HANDLE

Purpose: To ensure that the printer upper and lower frames are properly aligned.

1. DISCONNECT GAS SPRINGS (3-29).
(Do not remove the screws securing the gas springs to the bottom frame, step 8)
2. PLACE SERVICE LATCH IN THE SERVICE POSITION.
3. INSTALL THE DRUM MODULE AND TIGHTEN THE TWO 7MM NUTS.
4. PLACE THE BUMPER BRACKETS IN THE ADJUSTMENT POSITION.
 - a. Remove the two screws securing the left bumper bracket to the upper machine frame.
 - b. Rotate the bracket so that it is aligned with the scribe line on the printer upper frame.
 - c. Replace the mounting screws.
 - d. Repeat steps a through c for the right bumper bracket.
5. RELEASE THE SERVICE LATCH AND ALLOW THE PRINTER TO CLOSE.
6. LOOSEN THE ECCENTRIC ON THE EXIT ROLL DRIVE GEAR (3-56).

7. ADJUST THE LATCH HANDLE.

- a. Loosen the two latch handle screws.
- b. Close the latch handle.
- c. Lift up and tighten the right latch handle screw.
- d. Lift up and tighten the left latch handle screw.
- e. Ensure that the paper tray slides in and out without binding.

8. PLACE THE BUMPER BRACKETS IN THE OPERATING POSITION.

- a. Remove the two screws securing the left bracket and rotate the bracket so that the rubber is touching the printer lower frame.
- b. Replace the two screws but do not tighten them.
- c. Push the bumper bracket down so that it is seated firmly on the printer lower frame and tighten the two screws.
- d. Repeat steps a through c for the right bracket.

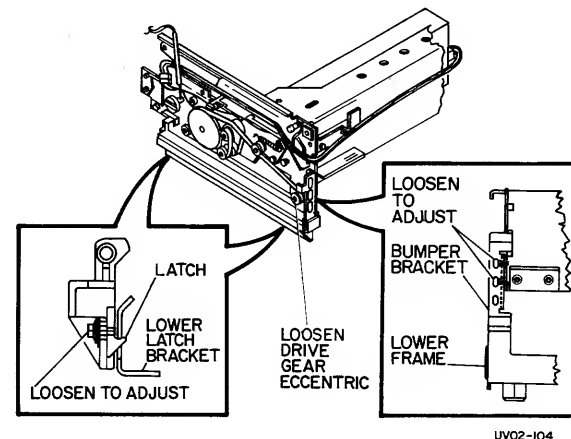
9. CONNECT THE GAS SPRINGS.**10. ADJUST EXIT ROLL DRIVE GEAR (3-56).**

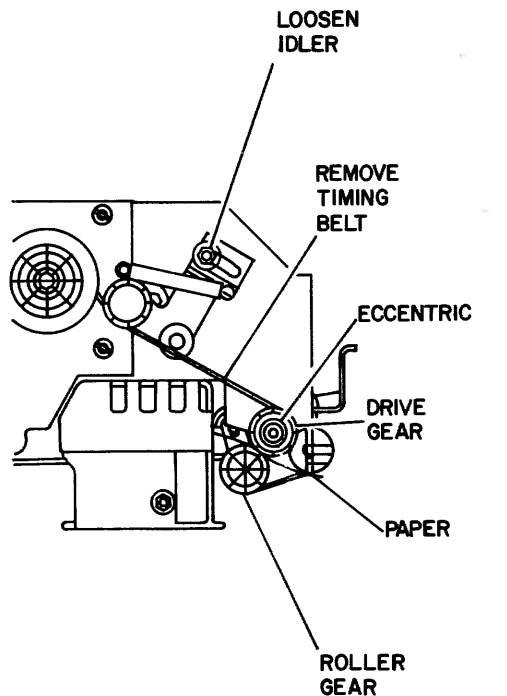
Figure 3-35. Latch Handle and Bumpers

Figure 3-35. Latch Handle and Bumpers

EXIT ROLLER DRIVE GEAR ADJUSTMENT

Purpose: To ensure that the exit drive rolls rotate freely and that the drive gears do not bind.

1. SWITCH POWER OFF, DISCONNECT POWER CORD.
2. LOOSEN THE TIMING BELT IDLER (Figure 3-36).
3. REMOVE THE TIMING BELT FROM THE DRIVE GEAR.
4. LOOSEN THE ECCENTRIC LOCK NUT ON THE DRIVE GEAR.
5. PLACE A 1/4" X 3" PIECE OF 20lb. PAPER TO THE LEFT OF THE DRIVE GEAR.
6. TURN THE EXIT ROLLS CLOCKWISE TO FEED THE PAPER BETWEEN THE DRIVE GEARS.
7. TURN THE ECCENTRIC UNTIL BOTH GEARS MESH.
8. TIGHTEN THE ECCENTRIC LOCK NUT.
9. ROTATE THE EXIT ROLLS COUNTERCLOCKWISE TO REMOVE THE PAPER.
10. ENSURE THAT THE PAPER HAS INDENTS BUT IS NOT TORN. IF THE PAPER IS TORN REPEAT STEPS 4 THROUGH 9.
11. INSTALL THE TIMING BELT AND TIGHTEN THE IDLER BRACKET WHILE THE UPPER FRAME IS LATCHED IN THE SERVICE POSITION.



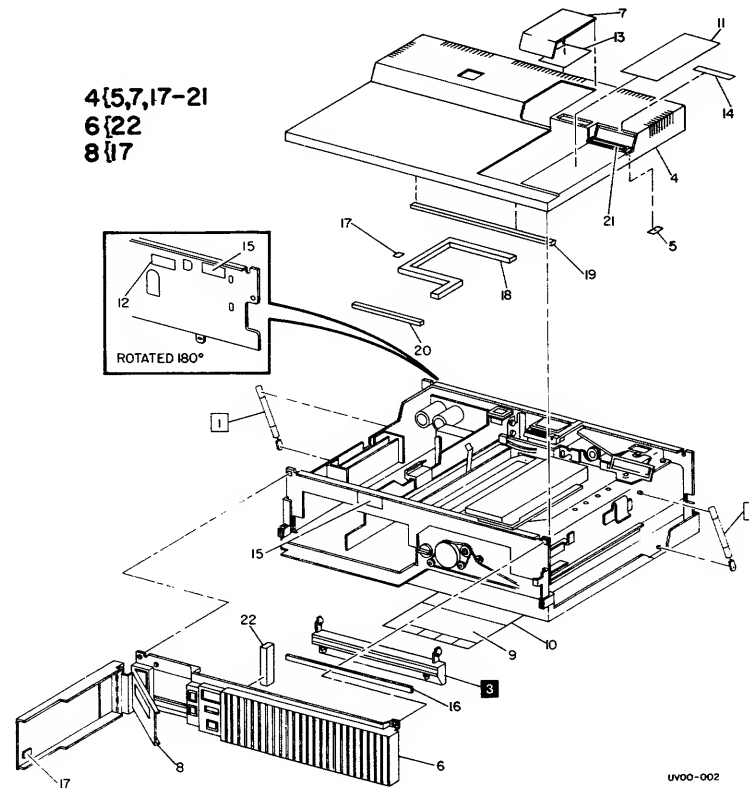
UV02-105

Figure 3-36. Exit Roll Drive Gear

SUBSYSTEM	PARTS LIST ON PAGE:
Cleaning	4-10
Covers/Frames	4- 1
CVT	4- 7
Development	4- 8
Drives	4- 3
Drum & Corotrons	4- 9
Electrical	4-12
Fusing & Output	4-11
Optics	4- 6
Paper Tray	4- 4
Paper Feed	4- 5
ROS/Electronics	4-13
Ventilation	4- 2

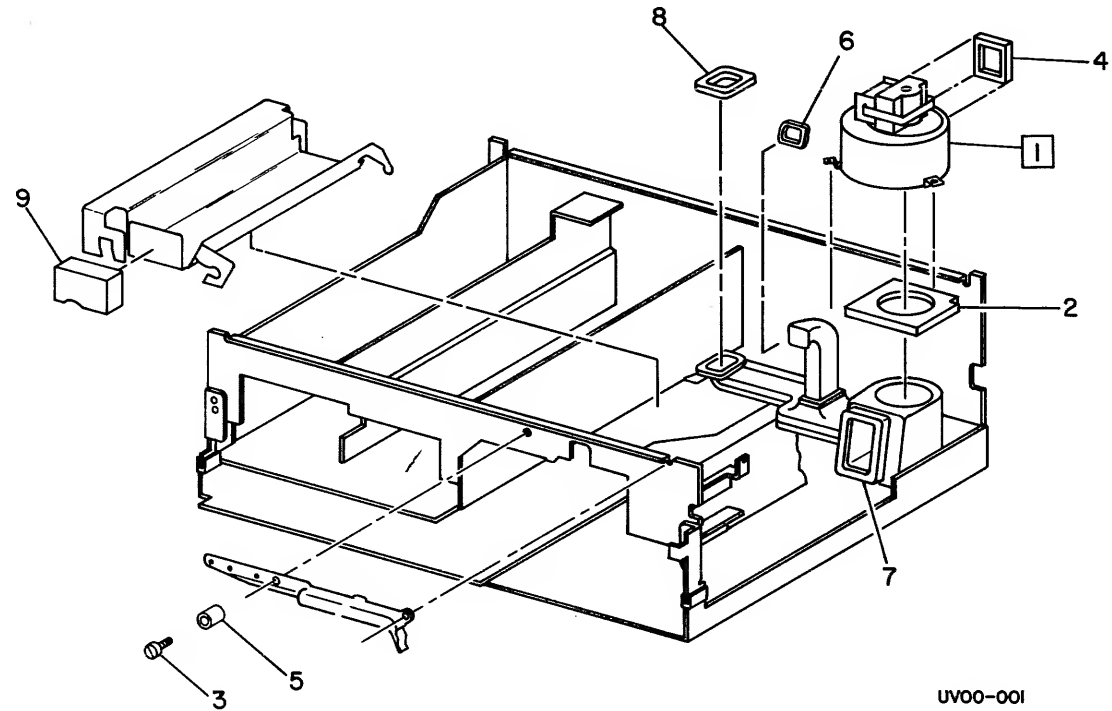
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ITEM	PART	DESCRIPTION
1	9P5297	LEFT HAND GAS SPRING
2	9P5586	RIGHT HAND GAS SPRING
3	3S6724	LATCH HANDLE
4	2S14803	TOP COVER W/CVT
-	2S14901	TOP COVER W/O CVT
5	27P1301	NUT
6	2S15002	FRONT PANEL
7	2P17411	TONER DOOR
8	2S16500	FONT DOOR
9	91S13051	INSTRUCTION CARDS
10	91P16446	PULLOUT CARD
11	91P13041	CVT LABEL
12	91P13010	SERVICE LABEL
13	91P13001	TONER LABEL
14	91P12909	XP-10 LABEL
15	--	REFERENCE ONLY
16	91P12284	LATCH LABEL
17	121P1939	MAGNET
18	35S3873	ROS SEAL
19	35S3872	REAR SEAL
20	35S3871	FRONT SEAL
21	1P9196	STRIP
22	35S3875	SEAL



ITEM PART DESCRIPTION

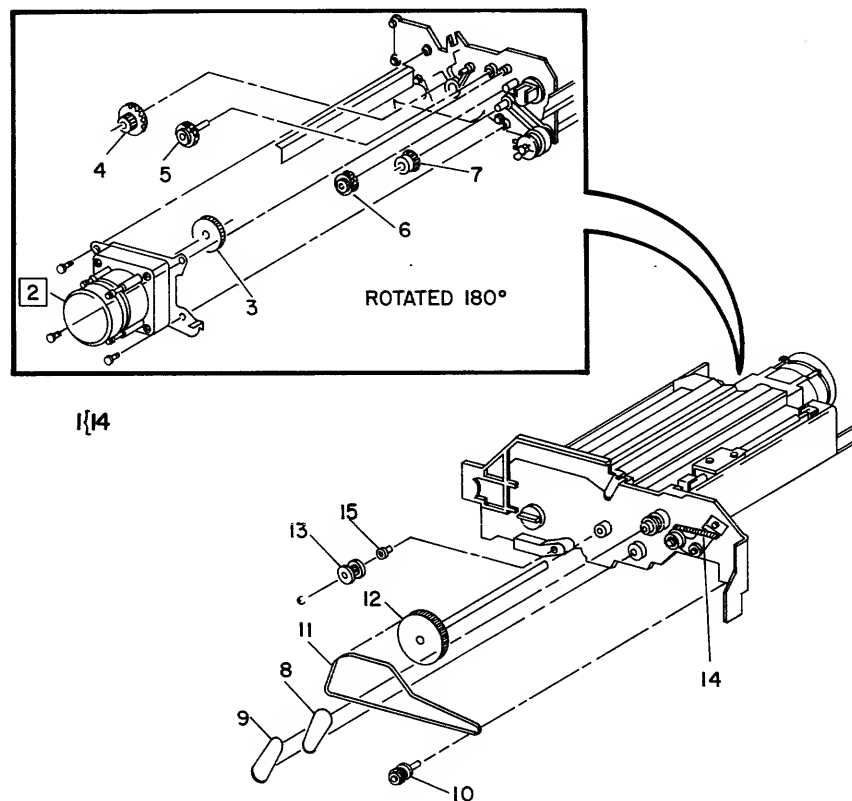
- 1 127S21082 BLOWER MOTOR (60HZ)
- 127S21092 BLOWER MOTOR (50HZ)
- 2 35S3825 MANIFOLD SEAL
- 3 10P1146 PLUNGER
- 4 35S3901 EXHAUST SEAL
- 5 16P2007 GROMMET
- 6 35S3565 TRANSITION SEAL
- 7 35S3559 FUSER SEAL
- 8 35S3556 SEAL
- 9 35S3892 SEAL (W/O CVT)



UV00-001

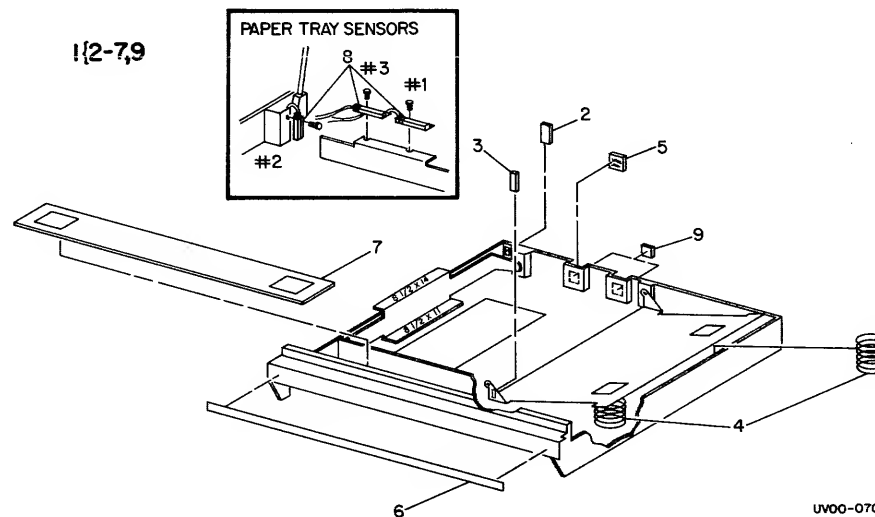
ITEM	PART	DESCRIPTION
1	1S9404	DRUM MODULE
2	127S2370	MOTOR (60HZ)
-	127S2371	MOTOR (50HZ)
3	7P4456	GEAR (SEE NOTE 1)
4	7P4457	IDLER GEAR (SEE NOTE 1)
5	7P4177	DEVELOPER GEAR (SEE NOTE 1)
6	7P3926	DEVELOPER GEAR IDLER (SEE NOTE 1)
7	7P4178	GEAR AND PULLEY (SEE NOTE 1)
8	23P1560	CAM DRIVE BELT
9	23P1559	AUGER DRIVE BELT
10	7P4022	EXTENTION GEAR/PULLEY
11	423W76001	TIMING BELT
12	20S3680	DRUM PULLEY
13	499W8225	PULLEY
14	409W2200	SPRING
15	13P2589	BEARING

NOTE:1 BEFORE REPLACING GEAR CHECK ALL
GEARS FOR EXCESSIVE WEAR

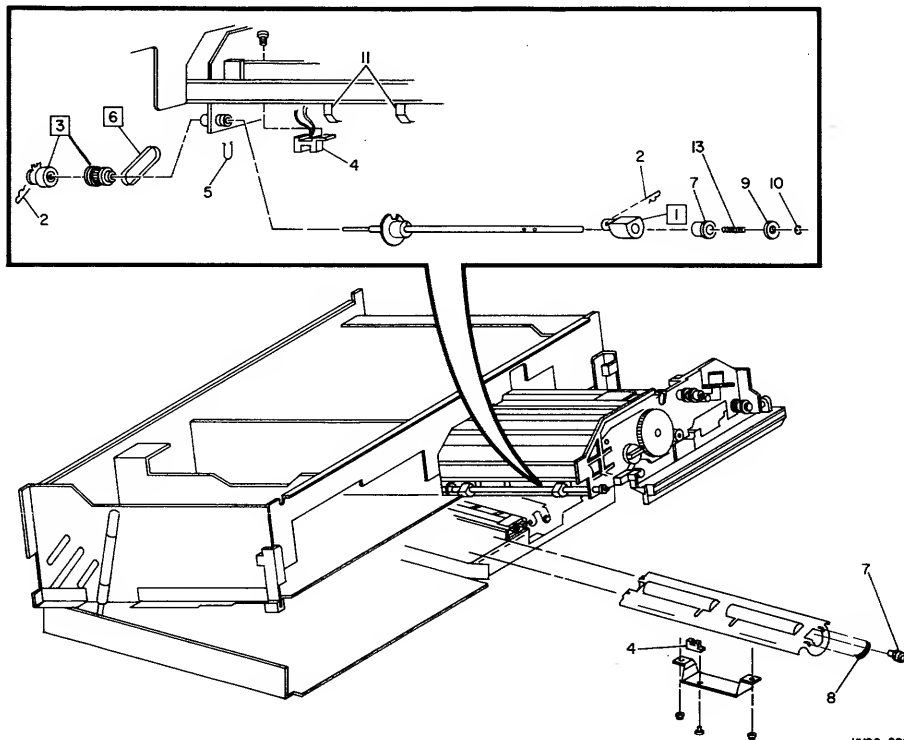


UV00-010

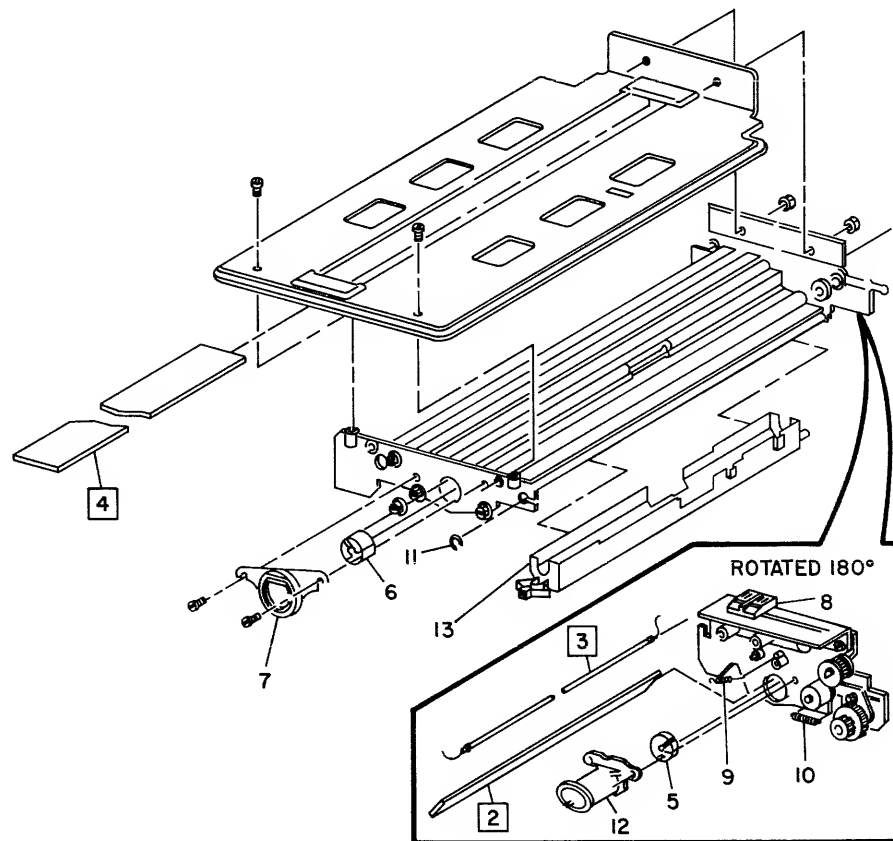
ITEM PART	DESCRIPTION
1 50S3241	PAPER TRAY, 8.5 IN (US)
- 50S3242	PAPER TRAY, A4 (RX)
- 50S3243	PAPER TRAY, (215 X 330/356 MM (RX))
2 121P1939	MAGNET, SENSOR #2
3 19P2394	BUCKLE PAD
4 9P5405	SPRING
5 91P8127	LABEL, MAX LOAD
6 91P12216	LABEL, 8.5 INCH
- 91P12217	LABEL, A4
- --	LABEL, 215 MM (P/O ITEM 1) (NOT SPARED)
7 91P16429	LABEL, 8.5 INCH
- 91P16440	LABEL, A4
- 91P16441	LABEL 215 MM
8 130P3569	SENSOR
9 --	MAGNET, SENSORS #1 & 3 (P/O ITEM 1) (NOT SPARED)



ITEM	PART	DESCRIPTION
1	7S4404	SEGMENT ROLLER, ASSEMBLY
2	116P2534	CLIP
3	121P1831	CLUTCH
4	130S3210	SENSOR
5	29P4304	RETAINING PIN
6	423W58001	DRIVE BELT
7	13P2590	BEARING
-	13P60742	SUBSTITUTE PART
8	9P5545	SPRING
9	251W16755	WASHER
10	--	E-RING
		(600S8810 H/W KIT)
11	19P4700	CLIP
12	--	WASHER
		(600S8810 H/W KIT)
13	--	SPRING
		(600S8810 H/W KIT)

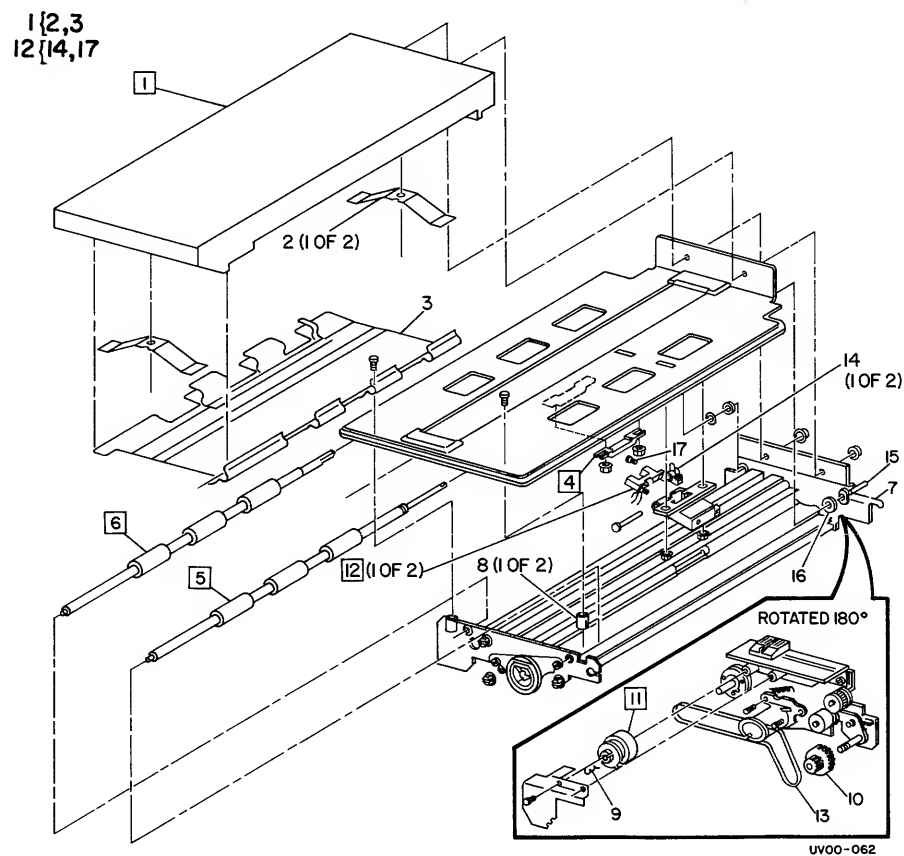


ITEM	PART	DESCRIPTION
1	62S2243	CVT ASSEMBLY (W/TAG 16), LOWER PART OF ASSEMBLY
-	62S2258	CVT ASSEMBLY (W/O TAG 16) CONTAINS ALL PARTS ON PL-6 AND PL-7
2	62S2241	OPTICAL FILTER
3	122P546	LAMP (50/60 HZ)
4	90P428	PLATEN GLASS
5	113P2263	LAMP HOLDER, REAR
6	113P2262	LAMP HOLDER, FRONT
7	35P3813	SEAL
8	3P5367	KNOB
9	9P5630	SPRING
10	409W2133	SPRING
11	--	BEARING (600S8810 H/W KIT)
12	54P1907	DUCT, TRANSITION (TAG 1)

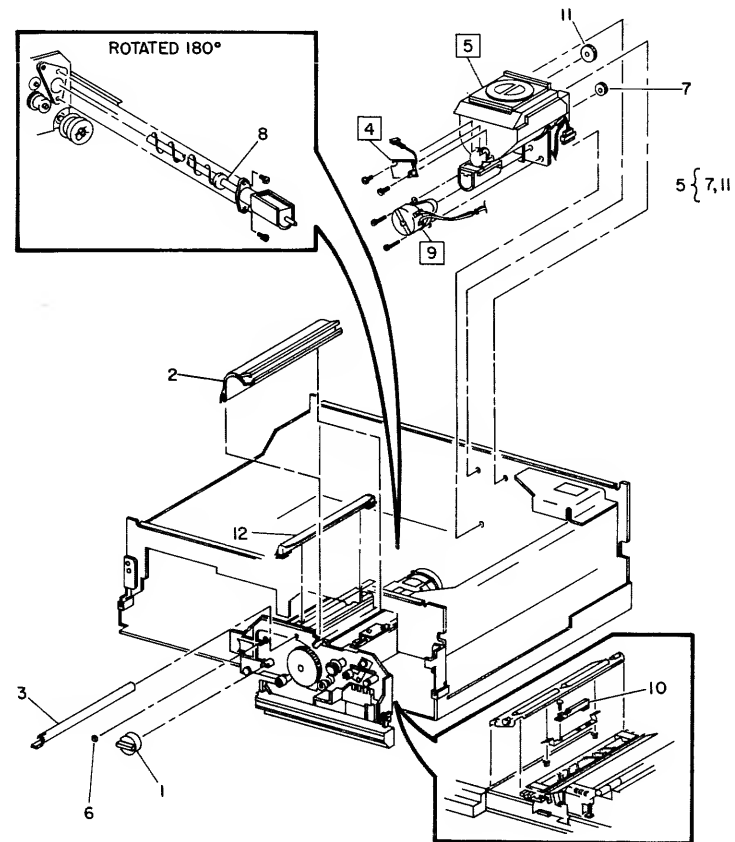


UV00-060

ITEM	PART	DESCRIPTION
1	2S18029	COVER ASSEMBLY
2	9P6080	LEAF SPRING
3	55S4932	UPPER BAFFLE
4	130S3538	THERMAL FUSE (TAG 1)
5	22S6022	INPUT ROLLER
6	22S6021	OUTPUT ROLLER
7	29P4304	RETAINING CLIP
8	27P1234	NUT
9	116P2534	CLIP
10	7P4179	GEAR/PULLEY
11	121P1831	CLUTCH
12	110S2785	SENSOR
13	423W65001	BELT
14	120P2210	ACTUATOR
15	13P2476	BEARING
16	28P2056	WASHER
17	--	SCREW (P/O ITEM 12) (P/O 600S8810 H/W KIT)

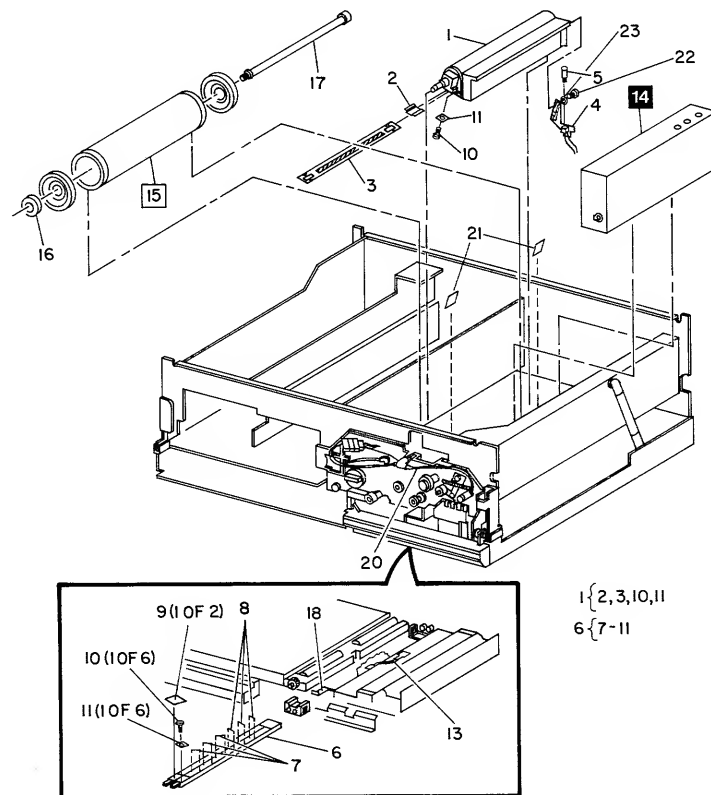


ITEM	PART	DESCRIPTION
1	3P4864	KNOB
2	2S17844	COVER
3	115S545	BIAS BAR
4	130P834	TONER SENSOR
5	94S469	TONER HOPPER
6	--	PLUG (NOT SPARED)
7	407W1503	GEAR, 22T
-	407W501	SUBSTITUTE PART
8	22S6025	AUGER
9	127P2251	DRIVE MOTOR (60 HZ)
-	127P2282	DRIVE MOTOR (50 HZ)
10	130S839	PATCH SENSOR (W/TAG 254)
-	600S8825	PATCH SENSOR (W/O TAG 254)
11	407W1504	GEAR 72T
-	407W502	SUBSTITUTE PART
12	53S727	FILTER ASSEMBLY



UV00-093

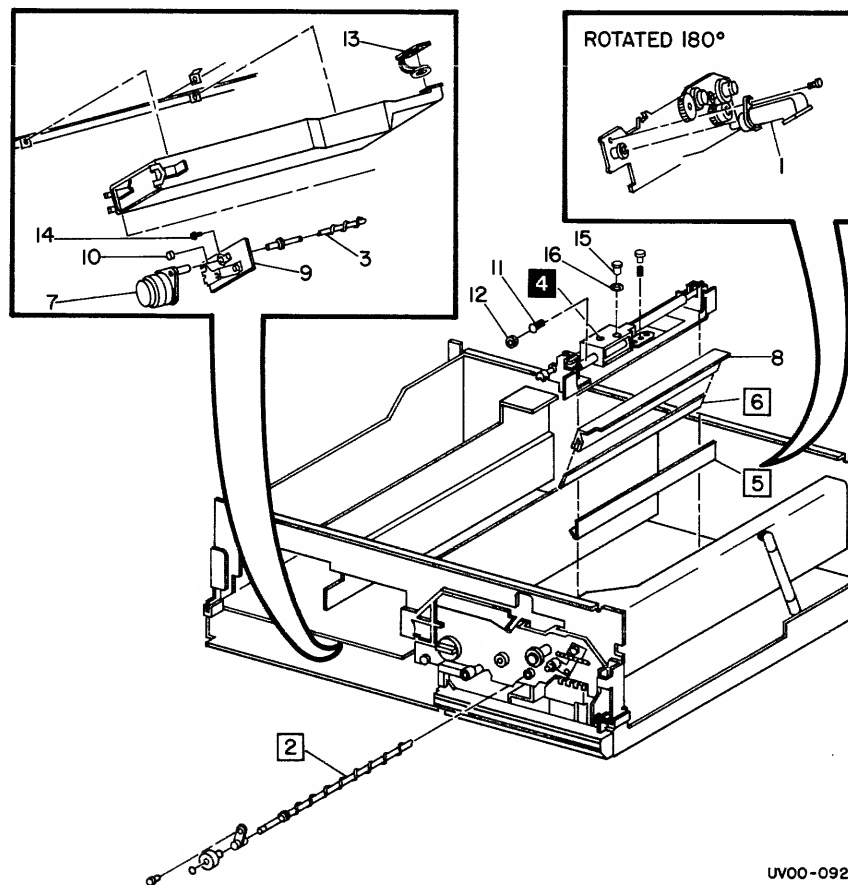
ITEM	PART	DESCRIPTION
1	125S580	SCOROTRON
2	55P4111	ARC SHIELD
3	55P4860	SCREEN
4	113S3031	LAMP SOCKET
5	122P532	ERASE LAMP
6	125S582	COROTRON
7	55P4601	FRONT WIRE SHIELD
8	55P4602	REAR WIRE SHIELD
9	55P3575	ARC SHIELD
10	--	SCREW (P/O ITEMS 1 & 6) (P/O 600S8810 H/W KIT)
11	19P4890	CLAMP
12	113S1387	RECEPTACLE
13	103S737	RESISTOR
14	105S1093	HVPS (50/60HZ)
15	1R72	DRUM
16	27P1288	NUT
-	27P1340	SUBSTITUTE PART
17	52S2007	TUBE
-	52S1852	SUBSTITUTE PART
18	19P4523	CLIP
19	117P2063	COROTRON WIRE (NOT SHOWN)
20	117P8935	HV WIRE
21	4S990	BUMPER
22	--	SCREW (P/O 600S8810 H/W KIT)
23	--	WASHER, LOCK (P/O 600S8810 H/W KIT)



1 { 2, 3, 10, 11
6 { 7-11

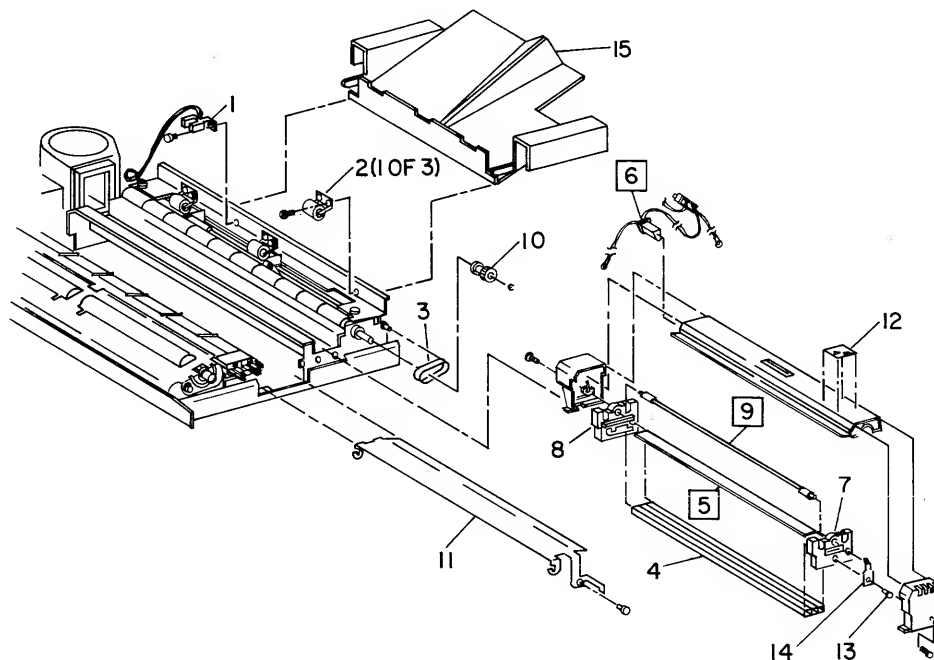
UV00-090

ITEM	PART	DESCRIPTION
1	52S1874	ELBOW
2	7S3948	CLEANING AUGER
3	7S4372	SUMP AUGER
4	121P2051	SOLENOID
5	35P3889	LOWER SEAL
6	33P485	BLADE
7	127P2251	MOTOR (60 HZ)
-	127P2282	MOTOR (50 HZ)
8	30S41691	SUPPORT
9	2S14535	COVER
10	5P3813	COUPLING
11	9P5420	SPRING
12	14P4188	SPACER
13	21P831	CAP
14	--	SCREW
		(P/O 600S8810 H/W KIT)
15	158W17352	SCREW
16	--	WASHER
		(P/O 600S8810 H/W KIT)



UV00-092

ITEM	PART	DESCRIPTION
1	130S3210	SENSOR
2	9S6177	SPRING
3	423W55001	BELT
4	1P7819	FUSER BASE
5	55P4072	QUARTZ SHIELD
6	130S831	THERMAL FUSE
7	14S4921	FRONT BLOCK
8	14S4922	REAR BLOCK
9	126P749	HEATER ROD (60 HZ)
-	126P750	HEATER ROD (50 HZ)
10	7P4006	GEAR PULLEY
11	22P5993	PREFUSER BAFFLE
12	91P11063	LABEL
13	--	SCREW
		(P/O 600S8810 H/W KIT)
14	116P2539	TERMINAL
15	50S3456	OUTPUT TRAY
		(BSG)



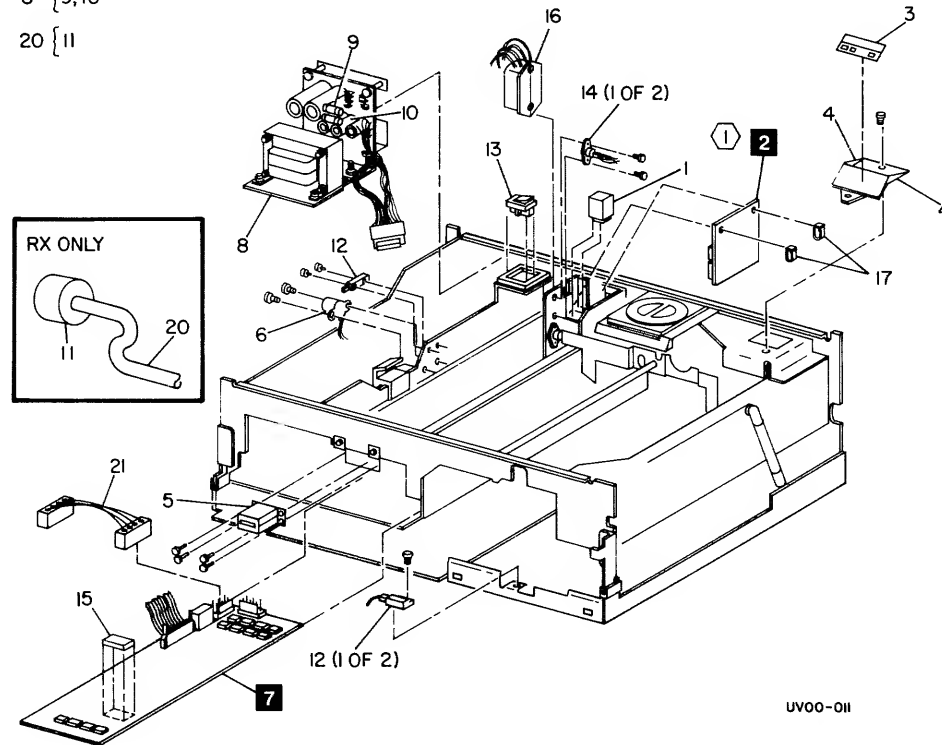
UV00-100

ITEM PART DESCRIPTION

1	109P645	RELAY
2	140S5308	AC DRIVER PWB
3	91P14649	LABEL
4	2S15791	CONTROL PANEL (US)
-	2S15792	CONTROL PANEL (RX)
5	111S486	COUNTER
-	111S474	ALTERNATE
6	124S26	BUZZER
7	140S9722	IOT CONTROLLER PWB
8	105S1050	LVPS 50HZ
-	105S839	SUBSTITUTE PART
-	105S1067	LVPS (60 HZ)
-	105S856	SUBSTITUTE PART
9	708W38701	FUSE, 10 AMP
10	708W1801	FUSE, 3 AMP
11	108P184	FUSE, 5 AMP (RX)
12	130P3569	SENSOR
13	110P2584	SWITCH
14	600S8566	TRIAC KIT
15	537S21206	IOTC EPROM
16	142S95	LINE FILTER
17	116P2493	SPACER
18	117P8929	115V POWER CORD (US)
19	117P24071	220V POWER CORD (50HZ)
20	117P24070	240V POWER CORD (50HZ)
21	152S2923	IOTC J4 CABLE

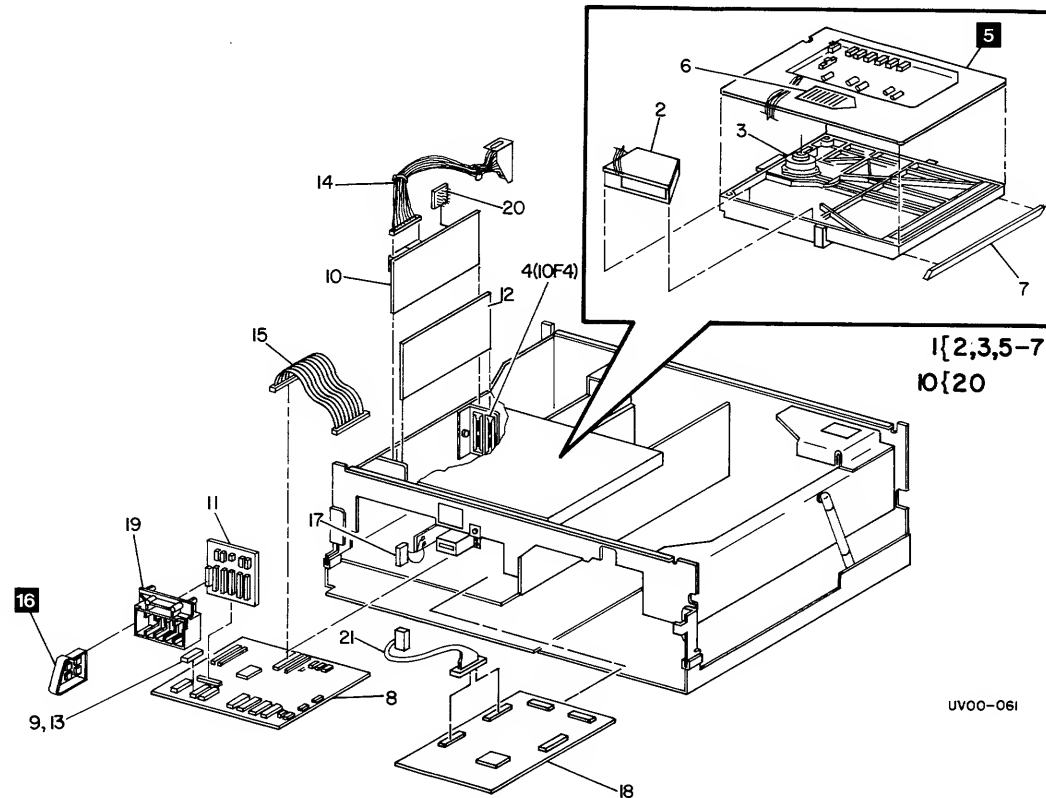
8 { 9,10

20 { 11



UV00-011

ITEM PART	DESCRIPTION
1 62S2254	RASTER OUTPUT SCANNER
2 122P87053	LASER
- 122S580	SUBSTITUTE PART
3 127S2638	POLYGON MOTOR
4 101P3059	GUIDE PWB
5 140S9051	ROS COVER/PWB ASSY
6 91P87676	LABEL
7 62P87281	WINDOW
8 140S8790	MPU/IG PWB
- 140S6980	SUBSTITUTE PART
9 133K200	PROGRAM EPROMS
	U1, U31 (US ONLY)
10 601S1423	HOST INTERFACE PWB KIT
11 --	PART OF ITEM 19
12 140S7181	D-RAM PWB
13 133K70	FONT EPROMS
	U8, U20 (US ONLY)
14 152S3055	HOST INTERFACE CABLE
	SERIAL HARNESS
- 152S3056	CENTRONICS HARNESS
- 152K2460	DATA PRODUCTS HARNESS
15 117S8930	RIBBON CABLE
16 101S4200	SWITCH CARTRIDGE
17 130S3539	FONT SENSOR
18 140K3130	C-VIDEO PWB
19 101S444F	FONT HOUSING
20 703W13291	R-PAK, CENTRONICS
- 703W30491	R-PAK, DATA PRODUCTS
21 152S3865	C-VIDEO HARNESS



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PRINTER CONFIGURATIONS

The table below lists the various configurations that are available for the Xerox Electronic Printer/Copier for both 60Hz and 50Hz versions. The Product Code is found at the beginning of the machine serial number.

PRODUCT CODE 60Hz/50Hz	CONFIGURATION	MODEL #
V31X/V32X*	Printer/Copier w/ESS	4045
V33X/V34X*	Printer only w/ESS	4045
V35X/V36X*	Printer/Copier w/ESS	XP-10E
V37X/V38X*	Printer only w/ESS	XP-10E
V39G/V40G	Printer/Copier w/N-Video	XP-10
V39H/V40H	Printer/Copier w/C-Video	XP-10C
V41G/V42G	Printer only w/N-Video	XP-10
V41H/V42H	Printer only w/C-Video	XP-10C

* X = A for Asynchronous Interface
B for Data Products Interface
C for Centronics Interface

D for Async with D-RAM PWB
E for Data Products with D-RAM PWB
F for Centronics with D-RAM PWB

Configurations continued

All configurations consist of an Image Output Terminal (IOT) which includes a Controller (IOTC) PWB, xerographic engine, power and ventilation subsystems.

Copier	The Copier option is provided with the addition of a Constant Velocity Transport (CVT).
ESS	The Electronic SubSystem contains a MicroProcessing Unit/Image Generator (MPU/IG), External ROM Receptacle (ERR) and a Host Interface (H/I) PWB.
D-RAM	Optional memory PWB used with ESS for font and graphics handling.
C-Video	("Customer" Video) replaces the ESS with a single PWB that receives a video signal from the Host.
N-Video	("Native" Video) versions do not have a resident controller. The Host system must provide ROS Video directly to the IOTC PWB.

DATA MONITOR MODE

The 4045 has a Data Monitor mode which causes the printer to produce pages containing all the text and control information sent from the Host. The output, sometimes referred to as a "hex dump", can be used by the customer or a System Analyst to verify that the Printer is receiving what the Host is sending.

Follow these steps to enter Data Monitor Mode.

1. Press OFF-LINE while switching power ON.
2. Continue to hold OFF LINE until Configuration Sheet is delivered.
3. The Control Panel will display **AA** while in Data Monitor Mode.
4. A Soft Reset will return the Printer to normal operation.

PRINTER/COPIER PRIORITY

The DIP switch, S4:3 on the IOTC PWB, will be factory set to ON for printers with the Copy Option to provide Printer priority.

This mode will not allow the copy feature to operate until a printing function is complete.

If a Customer requests Copier Priority, the Service Rep can set S4:3 to the OFF position in which case a print job will be interrupted when an original is detected in the CVT.

PRINTER SPECIFICATIONS

SIZE: width 27.5in. 70cm
depth 21.5in. 55cm
height 10.5in. 27cm

WEIGHT: 140lbs. 63.5KG
(ESS version with consumables)

SPEED: 10 pages per minute.
First page out time = 13.5 seconds

RESOLUTION: 300 X 300 spots per inch

EMULATION w/ESS: Xerox 2700 EP, XP-12E
Diablo 630

w/C-Video: Xerox 8040 Printer,
XP-12

INTERFACES

ESS: Centronics
Data Products
RS232 Asynchronous

C-VIDEO: "5-Wire" ECL or TTL

MEMORY w/ESS: 128K on MPU/IG PWB
384K on D-RAM PWB

PRINTER DIMENSIONS

Refer to Figure 5-1 for a top view of the 4045 Printer. The clearance dimensions depend on whether the 4045 is on a movable base or is permanently mounted.

The Table below gives the dimensions for both cases.

DIMENSION	MOVABLE		FIXED	
	cm	in	cm	in
A	7.5	3	12.5	5
B	2.5	1	23	9
C	61	24	64	24

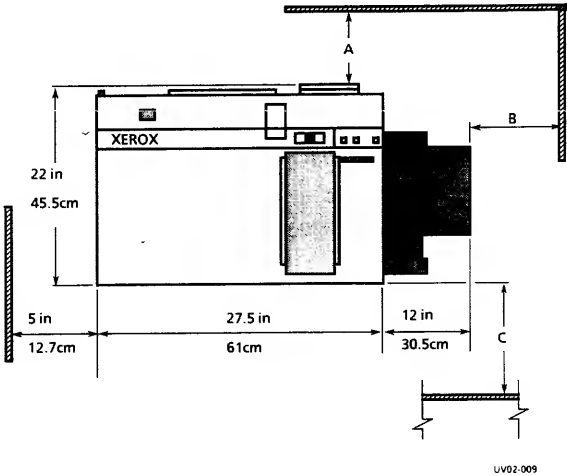


Figure 5-1. 4045 Space Requirements

WALL OUTLET CHECK

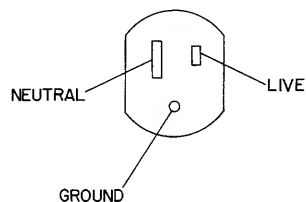
NOTE: The purpose of this check is to ensure that there is voltage at the wall outlet. This check is not to be used for checking the polarity or other purposes.

1. CONNECT METER LEADS TO METER.
2. SELECT THE APPROPRIATE A.C. VOLTS ON THE METER.

CAUTION

Ensure that the electrical outlet meets the requirements as specified in the following step, or the printer may be damaged.

3. CHECK THAT THE ELECTRICAL OUTLET IS WITHIN THE FOLLOWING VOLTAGE RANGE:
 - a. (Figure 2): BSG: 105 to 127 VAC.
 - b. (Figure 3): RXL: 220, 230, 240, or 250 VAC.
4. IF THE OUTLET DOES NOT MEET THE VOLTAGE REQUIREMENT IN STEP 3, CALL FOR ASSISTANCE.



560-333

Figure 5-2. BSG Wall Outlet

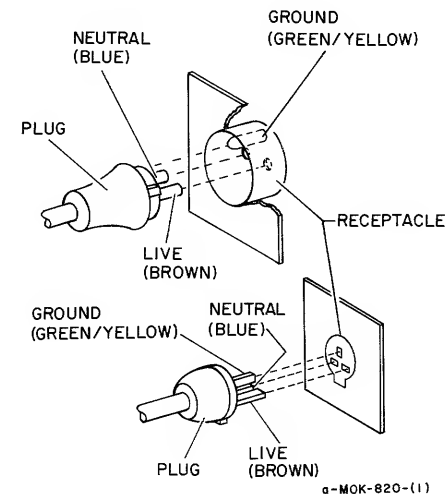


Figure 5-3. RXL Wall Outlet

INSTALLATION

1. CHECK WALL OUTLET (5-3).
2. CHECK PRINTER FOR SHIPPING DAMAGE.
3. CHECK PRINTER LEVEL (FIGURE 5-4).
 - a. Open Printer and remove Paper Tray.
 - b. Check printer level in front-to-rear direction and left-to-right direction.
 - c. Locate printer so that at least 80% of bubble is centered in the level.
4. ADD PAPER TO PAPER TRAY.
5. ADD TONER.
 - a. Lift toner door cover.
 - b. Remove tape from hopper door.
 - c. Follow instructions on toner door cover.
6. INSTALL OUTPUT TRAY OR SEQUENCE TRAY.
7. CONNECT POWER CORD AND SWITCH POWER ON.

NOTE: Power On Diagnostics will now run. If a failure occurs, (printer does not come to "READY" condition), refer to the Power ON Diagnostic Checklist on page 2-21.

* Requires Laser Safety Code 99

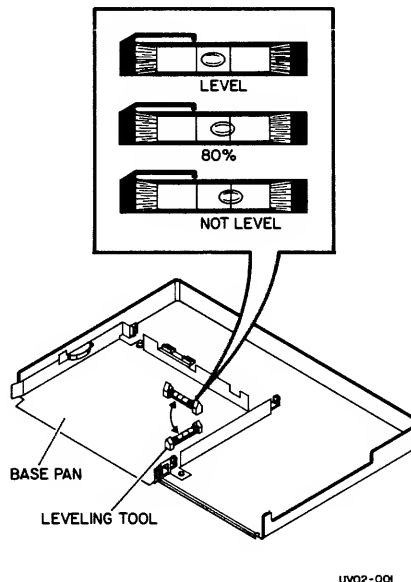
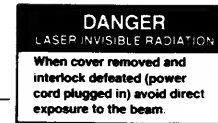


FIGURE 5-4. PRINTER LEVELING.

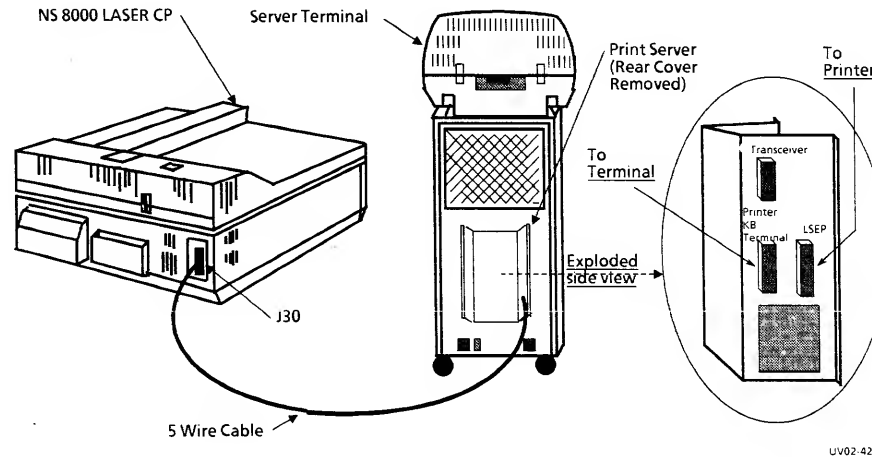
8. ENTER SERVICE DIAGNOSTIC MODE.
 - a. Press and hold LAST PAGE and RESET switches.
 - b. Switch power OFF/ON.
 9. ENTER CODE 42* AND PRESS OFF-LINE. A PRINT TEST PATTERN WILL BE GENERATED.
 10. REFER TO PAGE 2-3 TO EVALUATE PRINT QUALITY DEFECTS.
 11. MAKE FIVE COPIES OF 82P506 AND EVALUATE COPY QUALITY DEFECTS.
 12. SWITCH POWER OFF.
- NOTE:** If a 280 ISD or a 274/2751C is being installed, go to the Installation Procedure for that device located elsewhere in this Section.
13. INSTRUCT CUSTOMER TO CHECK CONFIGURATION SWITCHES AND INSTALL THE INTERFACE CABLE.
 14. HAVE CUSTOMER SEND A PRINT JOB TO THE PRINTER.
 15. SET PRINTER/COPIER PRIORITY SWITCH (5-1).



NS 8000 LASER CP INSTALATION

NOTE: This procedure assumes that the NS8000 Laser CP has been properly installed and is operational.

1. COMPLETE STEPS 1 THROUGH 7 ON PAGE 5-4.
2. SWITCH PRINTER POWER OFF.
3. CONNECT 5-WIRE INTERFACE CABLE TO J30 ON THE REAR OF THE PRINTER.
4. SWITCH PRINTER POWER ON (Figure 5-4a).
5. ENTER DIAGNOSTIC MODE AND RUN CODE 42*.
6. EVALUATE PRINT QUALITY.
7. MAKE COPIES OF 82P506, IF PRINTER INCLUDES COPY OPTION, AND EVALUATE COPY QUALITY.
8. HAVE OPERATOR RUN A PRINT JOB.



UV02-420

Figure 5-4a. NS8000 Laser CP Installation

CONFIGURATION SWITCH SETTINGS

4045/XP-10E - Without an ISD or IC

NOTE: If an ISD or 274/275 IC is being used, refer to the IC installation Instructions (5-25) or to the ISD Installation Instructions (5-41) for instructions on how to set the Configuration Switches.

The following procedure will allow you to assist the Customer in selecting the printing and communications options for the 4045. The procedure assumes that all of the switches are in the OFF position. The switches are referred to by the switch "bank" letter (A, B, C, or D), a colon (:) and the switch number (1 through 8).

An example would be C:4, which is bank C, switch #4. Refer to the label on the inside of the Font Door to locate the switches and the direction to set them ON.

For more information about the switch functions refer to the 4045 Reference Manual 600P87279.

PROCEDURE

Refer to the Host Interface (H/I) Hardware description on page 5-8 to determine the type being used.

(Continued)

Set all switches to the OFF position.

The Host Interface is Serial Asynchronous, (RS232C).

```
YES  NO
|    A Parallel Interface will be used. The
|    H/I Adapter is Centronics.
|    YES  NO
|    |    The H/I is Data Products. Set
|    |    D:1 ON.
|    |    _____
|    |
|    Customer wants the Vertical Format
|    feature; set D:3 ON.
|    |
|    The Host will send Inverted Data to the
|    Printer; set D:2 ON.
|    Go to A.
```

Set A:1 ON. Ask Customer to determine the "Asynchronous Printer Port Options" of the Host. Specifically, the baud rate, parity selection and flow control options (XON/XOFF, ETX/ACK, and Printer Ready/DTR).

(Continued next column)

Set the baud rate from the following table:

BAUD RATE	C:4	C:5	C:6
300	OFF	OFF	ON
600	OFF	ON	OFF
1200	OFF	ON	ON
2400	ON	OFF	OFF
4800	ON	OFF	ON
9600	ON	ON	OFF
19.2K	ON	ON	ON

Select ONE of the following Interface Protocols:

XON/XOFF - set C:1 ON.

or

ETX/ACK - set C:2 ON.

or

PRINTER READY/DTR - set C:3 ON.

The Host will be transmitting Parity Bits.

YES NO

| Go to A.

|

Set D:2 ON. The Parity Mode will be EVEN.

YES NO

| The Parity Mode is ODD.

| Go to A.

|

Set D:3 ON.

Go to A.

A
 |
 The Customer wants the Printer to emulate a
 Diablo 630 Printer.
 YES NO
 |
 | The Printer will operate in 4045 mode.
 | Go to C.
 |
 Set A:2 ON. The Customer wants to determine
 the Character Spacing of the Printer output.
 YES NO
 |
 | The 4045 will space all characters
 | according to the Font selected. Set
 | D:4 ON. Go to B.
 |
 Continue next column

Select the Character Spacing (pitch) below:

	<u>PS</u>	<u>10</u>	<u>12</u>	<u>15</u>
D:5	OFF	OFF	ON	ON
D:6	OFF	ON	OFF	ON

The Customer wants the "Horizontal Tabs"
 feature enabled.

YES NO
 |
 | Go to B.

Set D:7 ON.
 Go to B.

B

The Host transmits the following type of coded
 data to the Printer:

	<u>A:5</u>	<u>A:6</u>	<u>A:7</u>
ISO 6937	-	OFF	OFF
ASCII (7 BITS)	OFF	ON	OFF
ASCII (8 BITS)	ON	ON	OFF
IBM PC	-	ON	ON

Go to C

C

The Customer wants the "Auto Line Feed" option
 enabled; set A:3 ON.

The Customer wants the "Auto Carriage Return"
 option enabled; set A:4 ON.

Continue next column.

The Customer wants to enable Status Sheet
 printing when a job error occurs; set B:5 ON.

The Customer wants the Chime to sound when the
 Printer needs attention; set B:6 ON.

Ask the Customer to select one of the
 following choices for a Default Font:

	<u>Resident Portrait</u>	<u>Resident Landscape</u>	<u>1st Font in Cartridge #1</u>	<u>or #2</u>
B:7	OFF	OFF	ON	ON
B:8	OFF	ON	OFF	ON

Set the appropriate Font Language below:

	<u>B:1</u>	<u>:2</u>	<u>:3</u>	<u>:4</u>
US English	ON	ON	ON	ON
UK English	ON	ON	ON	OFF

(see Font Door Label for other languages)

Switch settings are complete. Install Switch
 Cartridge, close the Font Door and perform a
 Soft Reset to produce a Configuration Sheet.
 Leave a copy of the Configuration Sheet in the
 Machine Service Log pocket on the Rear Panel.

HOST INTERFACE HARDWARE (W/ESS only)

The 4045 is designed to operate using three Host Interface (H/I) hardware configurations: RS232 Serial; Data Products and Centronics Parallel. This is accomplished by providing three different H/I Adapters which connect to the same Host Interface PWB in the Printer ESS. When a customer receives a new 4045, the Printer should have the correct H/I Adapter installed. However, if the customer elects to change the H/I hardware configuration they will purchase a Kit from Xerox Sales that contains the following:

Centronics	-152S03056 Adapter Cable
	-703W30491 Resistor Pack
Data Products	-152S03057 Adapter Cable
	-703W13291 Resistor Pack
RS232	-152S03055 Adapter Cable
	(No Resistor Pack)

How to install/change a Host Interface Adapter Kit:

1. Switch power OFF and disconnect power cord.
2. Remove Top Cover.
3. Disconnect Adapter (P57) from Host Interface PWB and remove Side/Rear Panel.
4. Remove Adapter from Panel.

For Parallel installations only: complete steps 5 through 8.

5. Remove the Host Interface PWB.
6. Remove the Resistor Pack (U19) from the Host Interface PWB.
7. Install the new Resistor Pack, from the 97S Kit, into the U19 socket.
8. Install the Host Interface PWB.
9. Mount Adapter Cable to Side/Rear Panel.
10. Install Panel and connect P57.
11. Restore Printer and have customer set the Configuration Switch Cartridge for the new Host configuration.

INTERFACE CONNECTORS



Centronics



M/50
Data Products

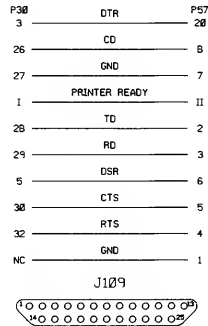
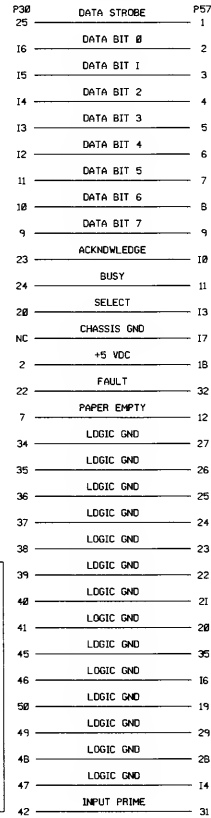
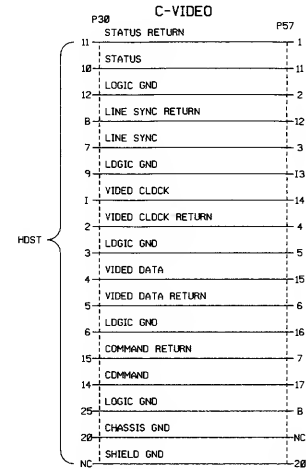
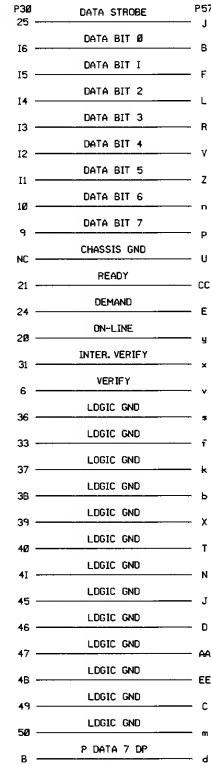
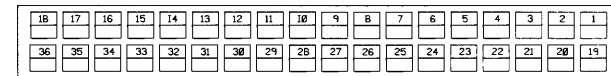
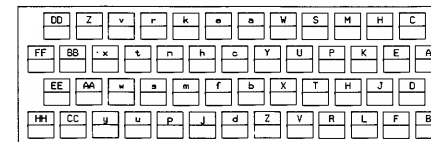


DB15
ETHERNET



DB25
RS-232

U1V03-401

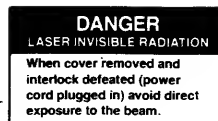
SERIAL CABLE
RS232-CPARALLELL CABLE
CENTRONICSPARALLELL CABLE
DATA PRODUCTSJ109
FRONT VIEW
CENTRONICSJ109
FRONT VIEW
DATA PRODUCTS

LEGEND

TD	TRANSMITTED DATA
RD	RECEIVED DATA
RTS	REQUEST-TO-SEND
CTS	CLEAR-TO-SEND
SG	SIGNAL GROUND / COMMON RETURN
DSR	DATA SET READY
DTR	DATA TERMINAL READY
RI	RING INDICATOR
CD	CARRIER DETECT (RECEIVED LINE SIGNAL DETECTOR)
DCD	RECEIVED CARRIER DETECT
RX / RC	RECEIVE SIGNAL ELEMENT TIMING
RX CLK	RECEIVE CLOCK
TX / TC	TRANSMITTER SIGNAL ELEMENT TIMING
TX CLK	TRANSMIT CLOCK
KRY	K READY

J109-014 (CAC)

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**PARALLEL INTERFACE TEST**
(4045/XP-10E ONLY)

CAUTION: THE FOLLOWING PROCEDURE MAY DAMAGE THE CUSTOMER EQUIPMENT OR SOFTWARE. INFORM THE CUSTOMER THAT WHEN P57 IS DISCONNECTED FROM THE HOST INTERFACE PWB, IT IS THE SAME AS DISCONNECTING THE CABLE TO THE HOST COMPUTER. THE CUSTOMER MAY WANT TO PUT THE COMPUTER IN STANDBY.

1. Switch power OFF and disconnect the Interface Adapter from J57 on the Host Interface PWB.
2. Connect the Parallel Test Box (600T80012) to J57.
3. Set Test Box Switch 8 to proper position for either Data Products or Centronics interface. See Configuration Sheet.
4. Switch power ON, enter code 42* and run one test print.
5. Enter code 45* (Go Online) and press OFF-LINE.
6. A test print (Figure 5-5) should be printed every time the SEND PRINT is pressed.

This test verifies the entire 4045 except the Host Interface Adapter that connects to J57. A continuity check can be used to verify the Adapter Cable (5-9).

If the test is not successful, replace the following:

- o Host Interface PWB
- o MPU/IG PWB

XEROX Decentralized Electronic Printer

Parallel Interface Test

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

0123456789;<=>?@

!"#\$%&'()*+,-"{}~z[\]^

[[[[[[[*

TEST COMPLETE

FIGURE 5-5. Test Box Print Sample

*** NOTE:** Brackets will be printed here, as shown, if the Configuration Cartridge is set for 7 bit data (A:5 OFF). If 8 bit data is selected, the "undefined character" (inverted +) will replace the brackets ([[[]).

ESS SERIAL LOOPBACK TEST
(4045/XP-10E ONLY)

1. Disconnect RS232 cable from P57 on the rear panel of the Printer.
2. Connect the Serial Loopback Tool (600T80023) to P57.

NOTE: If the Host end of the RS232 cable is female, the loopback tool can be connected there to verify the entire host cable.

3. Enter code 46 and press OFF-LINE. The Control Panel will first display EE, then change to JJ if the Test was successful. This Test sequence will continue until OFF-LINE is pressed again.

If EE is displayed continuously, and the Printer beeps instead of displaying JJ, the Loopback Test has failed. Replace the following components one at a time until the Loopback Test is successful.

- o Host Interface PWB
- o RS232Cable (external)
- o Host Interface Adapter
- o MPU/IG PWB

NS8000 LASER CP RAP

This RAP assumes that the Printer displays one of the following Status Codes.

L2 - Missing Start of Scan

L3 - Failure of the Laser to turn on.

P1 through P4 - Communication problem between NS 8000 Laser CP and Print Server.

- o Check that all Interface and Adapter Cables between the Print Server and ROS are seated.
- o Check that switch setting on C-Video PWB are as shown in Figure 5-5a.
- o Check that the Interface Adapter Cable connects to J3 on the C-Video PWB.

Enter Diagnostic Mode and run Code 28*. Bar Pattern prints correctly.

YES NO

- | Bottom half of pattern is black.
- | YES NO
- | Go to L2 or L3 Status Code RAP (2-26).
- |
- o Recheck cables, connectors, and switches.
- o Check that Print Server is On-line.
- o Replace 5 Wire Cable, C-Video PWB, and Adapter Cable in that order.

Enter Diagnostic Mode and run Code 47. Display alternates between EE and JJ.

YES NO

- | o Have System Administrator disconnect the 5-Wire Interface Cable from the Host Processor and connect the Serial Loopback Tool (600T80023) to the end of the Cable.

A B

A B

- |
- |
- | o Run Code 47. EE and JJ fail to display.
- | YES NO
- | EE and JJ are displayed. Notify System Administrator that the problem is in the Print Server.
- |
- |
- | o Disconnect the 5-Wire Interface Cable from J30 at the rear of the Printer and connect the Serial Loopback Tool to J30.
- | o Run Code 47. EE and JJ fail to display.
- | YES NO
- | EE and JJ are displayed. Replace the 5 Wire Cable.
- |
- | Replace the following components:
- | o C-Video PWB
- | o Print Adapter Cable
- | o Jumper Cable between C-Video and IOTC.

Run Code 42*. Test Pattern prints correctly.

YES NO

- | Run Code 43*. Error log is incorrect.
- | YES NO
- | Error log prints correctly. Problem in Print Server. Have Operator load LaserCPAlignmentPattern.interpress.
- |
- | Replace the following components, in order.
- | o C-Video PWB
- | o 5 Wire Cable
- | o Print Adapter Cable
- | o Jumper Cable between C-Video and IOTC.

If a problem still exists, it is probably in the Print Server. Call for assistance.

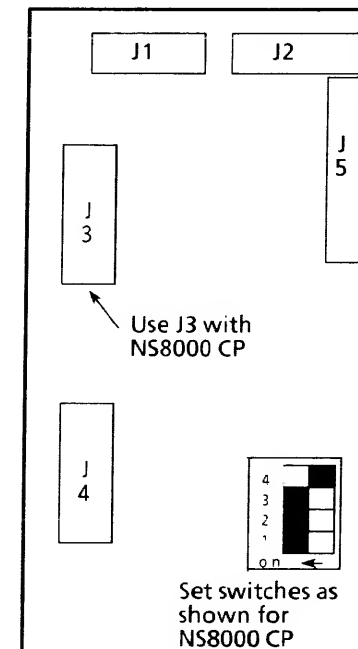


Figure 5-5a. C-Video PWB

ESS PRINT TEST PATTERN

The Print Test Pattern is the primary print quality test pattern to be used on the 4045. It is resident in an EPROM on the MPU/IG PWB and can be generated by entering the Service Diagnostics Exerciser Test number **42***.

The Print Test Pattern will be used on every service call to evaluate print quality parameters such as registration and solid area density.

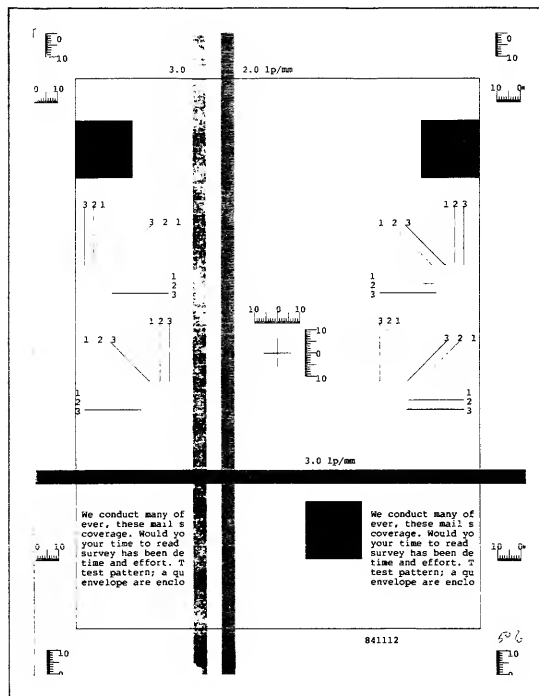


Figure 5-6. Print Test Pattern

* Requires Laser Safety code 99.

OTHER PRINT TEST PATTERNS

In the Service Diagnostic Exerciser mode there are additional test patterns that are used in evaluating print/copy quality.

Horizontal Lines (test code 28*) prints the top portion of the configuration sheet that originates from the IOTC EPROMs.

Light Dusting (test code 26) is created using the exposure lamp.

Dark Dusting (test code 76)

Light Dusting (test code 77*) is created using the ROS.

W/ESS ONLY

Character Proof Prints (test code 43*)

Prints the entire character set for all Resident and Cartridge Fonts available in the Printer.

COPY QUALITY RATING GUIDE 82P284

Test pattern, 82P284, is used to compare copies with CAM standards.

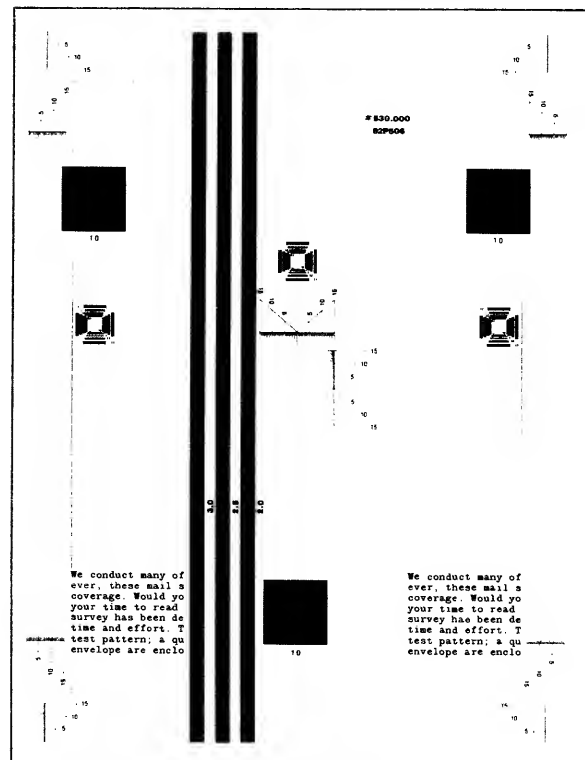


Figure 5-7. Copy Test Pattern 82P506.

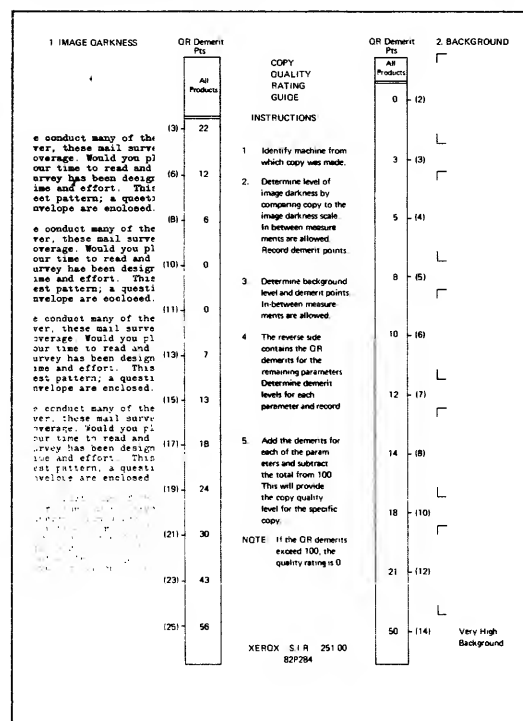


Figure 5-8. Copy Quality Rating Guide 82P284



Test pattern 82P520 is used to check solid area density on both the Print and Copy Test Patterns.

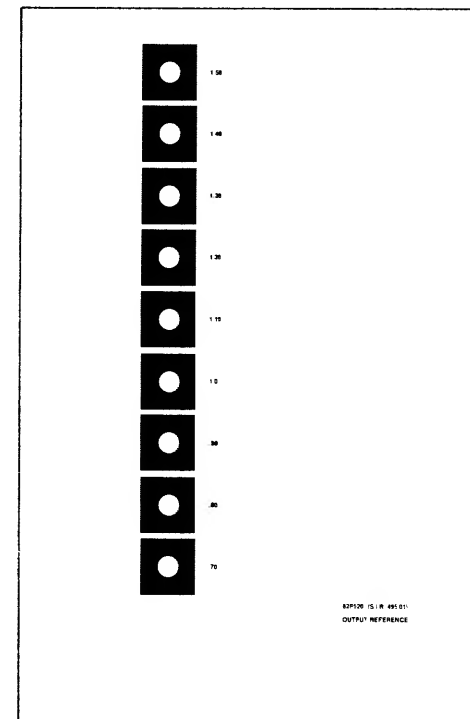


Figure5-9. Solid Area Density Pattern
82P520

A4 COPY TEST PATTERN

(TBD)

CLEANING MATERIALS

Cleaning Cloth Treated	35P01638
Cleaning Pads	600S04372
Cotton Swabs	35P02162
Drop Cloth	35P01737
Drum Cleaning Kit	600S05548
Heavy-Duty Towel	35P03191

Formula "A" Cleaner	43P00048
Film Remover	43P00045
Fuser Cleaning Solvent Pads	43P00089
Lens and Mirror Cleaner	43P00066

Disposable Gloves	99P03082
Disposable Plastic Bags	99P03023

Developer	5R00153
-----------	---------

RX UNIQUE

Cleaner	8R90175
Step 2 Wash	8R90176
Lens Cleaner	8R90178
Cloth	8R90019
Cleaning Pad Kit	600S04372
Fuser Cleaning Solvent	43P00083

TOOLS

Included with Printer.

Probe Holder	30P41890
Zinc Stearate	8R00181

Parallel Test Box	600T80012
Serial Loopback Tool	600T80023

Miscellaneous Hardware

Cable Ties	600S00697
Electrical Components Kit	600S08654
Hardware Kit	600S08810
Pin Extractor	
Body	600T00918
Adapter	600T00922

Figure 5-10. A4 Copy Test Pattern

INTRODUCTION

All important modifications made to the Printer are identified by a tag number. A Tag Matrix is located on the Base Pan below the Paper Tray. To check the Tag Matrix, open the Printer and remove the Paper Tray.

CLASS CODES

Class codes identify the class of each kit as follows: "M" kits are mandatory; "O" kits are optional; "R" kits are to be used when the part is repaired, and "N" is a NON-Field retrofit.

TAG: 1 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Thermal Fuse. Repositioned to the center of the CVT Baffle to obtain a more accurate reading.

TAG: 2 CLASS: R KIT NO: N/A

NAME AND PURPOSE: CVT Output Roll. New type eliminates the requirement of a washer by moving the E-Ring groove.

TAG: 3 CLASS: KIT NO: N/A

NAME AND PURPOSE: Not issued yet.

TAG: 4 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Cleaner Bracket and Auger Housing. Allow a reduced Cleaning Blade load.

TAG: 5 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Latch / Redesigned.

TAG: 6 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Release Tray. To prevent foreign objects (staples) from falling through around the CVT Input Drive Rolls.

TAG: 7 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Xerographic improvements

TAG: 8 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Cleaner Assembly. Updated design.

TAG: 9 CLASS: R KIT NO: N/A

NAME AND PURPOSE: New HVPS with higher Transfer Voltage for envelopes.

TAG: 10 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Redesigned Cassette to permit assembly of all four mounting screws. Eliminates the use of the left front foot to hold the cassette guide to the base.

TAG: 11 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Air Filter Assembly. Improves reliability by reducing Toner contamination.

TAG: 12 CLASS: KIT NO: N/A

NAME AND PURPOSE: Not issued yet.

TAG: 13 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Redesigned Power Supply.

TAG: 14 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Toner Hopper Doors and Covers. Redesigned for functional changes.

TAG: 15 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Sensor Housing. New style helps eliminate E2 and E3 Jams.

TAG: 16 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Change from frame eccentric to optics jack screw on new CVT.

TAG: 17 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Toner Hopper. New style.

TAG: 18 CLASS: R KIT NO: N/A

NAME AND PURPOSE: New bearing in lower fuser to eliminate static that causes curling.

TAG: 19 CLASS: KIT NO: N/A

NAME AND PURPOSE: Reset Developer Trim Gap.

TAG: 20 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Release of new Patch Sensor.

TAG: 21 CLASS: R KIT NO: N/A

NAME AND PURPOSE: New Erase Lamp Assembly.

TAG: 22 CLASS: R KIT NO: N/A

NAME AND PURPOSE: New Home Position Sensor
Mounting Bracket.

TAG: 23 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Changes CVT belt tension
which reduces copy mode skips. Also change
that eliminates hang up on slide bracket when
exposure control knob is moved to lightest
copy position.

TAG: 24 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Changed material in Main
Drive and Idler Gears.

TAG: 25 CLASS: R KIT NO: N/A

NAME AND PURPOSE: Release B1 CVT Optics.

TAG: 26 CLASS: R KIT NO: N/A

NAME AND FUNCTION: New Patch Sensor Harness.

TAG: 27 CLASS: KIT NO: N/A

NAME AND FUNCTION: New ESS.

TAG: 28 CLASS: KIT NO: N/A

NAME AND FUNCTION: Not issued yet.

TAG: 29 CLASS: KIT NO: N/A

NAME AND FUNCTION: Not issued yet.

TAG: 30 CLASS: R KIT NO: N/A

NAME AND FUNCTION: Changes Registration Roll
to eliminate image smear.

TAG: 255 CLASS: KIT NO:

NAME AND PURPOSE: Not issued yet.

TAG: 254 CLASS: R KIT NO: 600S08825

NAME AND PURPOSE: New Patch Sensor.
Hard tooled design release.

5 Wire Interface - A Xerox interface implementation using five wires to connect between a Printer and an 8000 Work Station.

7/8 Bit Data - ASCII code sent as 7 bit characters or with a leading "0" as an eighth bit.

A4 - A European paper size standard.

ACK - Signal that printer received message correctly and is ready for next message.

ADC - Automatic Density Control. An automatic toner dispensing system.

ASCII - American Standard Code for Information Interchange data communications codeset. This is a 7-bit-plus-parity codeset that can be transmitted with a leading "0" as an 8-bit set.

Asynchronous - Data transmission in which the time between transmitted characters can vary. Controlled by start and stop codes at character beginnings and ends.

Baud - Measure of data transmission speed, roughly equivalent to bits per second.

BCD - Block Circuit Diagram.

Bead Carryover - Beads of Developer on the Print/Copy. A deletion is common around each particle.

Bisync/BSC - IBM method of Binary Synchronous Transmission.

Block - A group of data transmitted as a unit.

Bridging - A hollow area in the Toner supply preventing the Toner from coming in contact with the Dispensing Auger.

Centronics/Data Products - Define two different parallel data transmission protocols using different cable connectors.

CCITT - International Telephone and Telegraph Consulting Committee.

CD - Carrier Detected. (RS-232)

Cold Flow - A displacement of the Selenium coating of the Drum by an object, such as the Doctor Blade, touching one area on the Drum surface for a long time.

Configuration - The state of various interface and printing options that are set for the host and Printer.

CR - Carriage Return (ASCII OD and EBCDIC OD).

CRC - Cyclic Redundancy Check. An error checking system used in data transmission.

Crystallization - Selenium alloys crystallize when exposed to heat or chemicals. When this occurs, the Drum cannot accept a full charge and the result is deletions or unresolved images.

CTS - Clear To Send (RS-232).

C-Video - Customer Video. A Printer Control PWB that receives video data and commands from a host to transfer to the IOTC.

CVT - Constant Velocity Transport.

Data Monitor - A mode of printer operation where all the information transmitted to the printer is printed in Hex.

Data Set - Modem.

DC1/DC3 - A control sequence used with asynchronous transmission that enables the Printer to signal the host when to start and stop transmitting data.

DCE - Data Communication Equip[ment]. Equipment installed on site to establish, maintain, and terminate a connection between the data terminal equipment and the Telco lines.

Density - A measurement of reflectivity of the relative contrast between image and background.

DIP Switch - Dual In-line Package Switch.

Distorted Image - An image that is deformed in shape or is vague and lacking a definite outline.

DMM - Digital Multi-Meter.

DSC - Data Stream Compatibility. IBM Network System.

DSR - Data Set (Modem) Ready (RS-232)

DTE - Data Terminal Equipment. Any piece of equipment at which a communications path ends or begins. (Terminal or Printer). (RS-232)

DTR/Printer Ready - Data Terminal Ready. Also used as Printer Ready. (RS-232).

Download - The process of transferring data from the host to the printer, i.e. fonts, commands.

D-RAM - Dynamic RAM. An optional PWB that plugs into the MPU/IG and provides the ESS with an additional 356K of memory.

Dry Imager - Same as Toner

Duplex Channel - A data transmission system capable of transmitting in both directions at once.

EBCDIC - Extended Binary Coded Decimal Interchange Code. An 8-bit code set used on communications lines with IBNM terminals and computer systems.

Emulation - Refers to techniques where one device (printer) is made to behave exactly like another.

EPROM - Erasable Programmable Read Only Memory. One of the types of memory chips used in the 4045.

ERR - External ROM Receptacle. A PWB that accepts ROM Cartridges containing fonts.

ESC - Escape. (ASCII 1B)

ESS - Electronic Sub System. The electronic "Front-End" of the 4045.

Ethernet - A communication system between devices in a computing system. Used primarily by Xerox.

ETX - End Of Text. (ASCII 03 and EBCDIC 03).

EXT/ACK - A standard way of communicating ready/not-ready information to the host.

Facet - Face. One of a number of surfaces on a crystal, mirror, or gem stone.

Font - A typeface in one size, weight, and stress.

Glitch - A print defect that displaces the Laser Scan line so that it appears to start and stop late. Common occurrence in Code 42* Test Patterns.

Half-Duplex Channel - A data transmission channel capable of transmitting in both directions, but only one direction at a time.

HDLC - High Level Data Link Control. A CCITT standard for communication line protocol.

Hex - Hexadecimal. A numbering system consisting of 16 different digits, 0 through 9 and A through F.

Hollow Characters - Black areas on output documents where the center of the area is decidedly lighter than the outline.

Host - The host computer. The computer delivering the information to be imaged to the 4045.

HVPS - High Voltage Power Supply.

IBM PC - IBM Personal Computer. The IBM PC transmits data to the Printer in a unique code.

Image Darkness - A visual measurement of the overall blackness of the image. This is influenced by width and image density.

Interface - The area in a device where different sub-systems connect together electrically or a device used to establish a connection between two different devices.

IOT - Image Output Terminal. The ROS and Xerographic portion of the printer.

IOTC - IOT Controller. A PWB in the IOT that controls the operation of the IOT and communicates with the ESS.

ISO - International Standards Organization.

Laser - Light Amplification by Stimulated Emission of Radiation.

LED - Light Emitting Diode.

LF - Line Feed (ASCII 0A and EBCDIC 25).

Loopback - A test where a known signal is sent from a source to a remote device or interface. The returned signal is checked against the transmitted signal to see that no change occurred.

LVPS - Low Voltage Power Supply.

Magnification - A change in the position of the right edge of a portrait print. An incorrect Polygon Mirror speed causes the end of the laser scan line to vary. See Wavy Lines Print Quality Checklist.

MPU/IG - MicroProcessor Unit/Image Generator. The MPU is the computer controlling the printer. The Image Generator is on the same PWB and uses font data to convert coded data (ASCII) into video data.

NAK - Signal from the Printer indicating the previous data block was in error and that retransmission can begin. Also used as a "not-ready" signal.

NUL - Null (ASCII 00 and EBDIC 00). A string of "0's".

OL - Open Loop.

Over Toned - Toner concentration is too high.

Parallel - In data communications, refers to sending the code for a character over a set of lines all bits at once.

Parity - An error checking system where an extra bit may be added to the character data bits to have either an even or odd number of bits in the character transmitted. Even or Odd Parity is selected.

Parity Error - A parity error occurs when the receiving device counts the number of bits in the received character, including the parity bit, and finds the number does not agree with the predetermined odd/even requirement.

Pitting - Small defects on the surface of the drum that print out as spots on the print/copy.

Pixel - Smallest unit of image division. The printed image and the drum can be considered to be able to be divided into 300 pixels (dots) per inch. The smallest printable unit the 4045 can reliably reproduce is 2 pixels square.

P/J - Plug/Jack. Used to identify plugs, such as on cables, and the corresponding jack or connector it mates to.

Polygon Mirror - A many sided unit where each side (facet) is a mirror.

PROM - Programmable Read Only Memory.

Protocol - A formal set of conventions governing a communication process.

Queue (Pronounced as Cue) - A waiting line. In some systems, documents to be printed are put in a Print Queue.

RAM - Random Access Memory.

RAP - Repair Analysis Procedure.

RDATA or RD - Received Data (RS-232)

Registration - The alignment of the paper with the developed image on the Drum.

Resolution - The ability of a printer/copier system to record fine line/space detail. Resolution is expressed in terms of line pairs per millimeter (LP/mm). The Code 42* Test Print creates 2 and 3 LP/mm.

ROM - Read Only Memory.

ROS - Raster Output Scanner.

RS232 - An interface standard to connect elements of a communication system.

RTS - Request To Send (RS-232).

SAD - Solid Area Density.

Scorotron - Corotron with a screen.

SDLC - Synchronous Data Link Control. An IBM data communication message protocol.

Selfoc - Self focusing. Lens used in the CVT.

Serial - In data communications, refers to sending the code for a character over a single line one bit at a time.

Simplex Channel - A data transmission system capable of transmitting in only one direction.

SNA - System Network Architecture. A communication system developed by IBM for distributed processing networks.

SOS - Start Of Scan.

Start Bit - The first element in a character in asynchronous serial transmission.

Stop Bit - The last element(s) in a character in asynchronous serial transmission

STX - Start Of Text. (ASCII 02 and EBCDIC 02).

SYN - Synchronous Idle (ASCII 16 and EBCDIC 32).

Synchronous - Data sent together with a time base that allows sender and receiver to operate locked together.

TDATA or TD - Transmitted Data (RS-232).

VFWR - Voltage, Full Wave Rectified. A DC voltage.

Video Data - Signal sent to IOT by ESS that turns laser on and off to create image on the drum.

WACK - Wait-Before-Transmit Acknowledgement.

XON/XOFF - A standard method for the printer to indicate "Ready", "Buffer Full", etc. See DC1/DC3.

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INSTALLATION PROCEDURE

UNPACK

1. Verify that shipment includes:

- o Interface Controller
- o Centronics Cable
- o AC Power Cord

NOTE Save the shipping carton and packing material until installation is complete.

2. Inspect the IC for evidence of shipping damage. If there is evidence of shipping damage, do not install the unit; notify your FSM.

INSTALL

1. Install and verify operation of the 4045 Printer(5-4) .
2. Set the 4045 Configuration switches as follows:

A:7 ON (EBCDIC)

NOTE: For 275 IC installations, set the following switch, D:4, to ON. For 274 IC's, ask customer if Host System is SNA or DSC and set switch D:4 accordingly.

D:4 ON (SNA)
OFF (DSC)

All other switches OFF.

3. Remove IC Top Cover (5-26).
4. Set SWS switches to default values. Refer to Figure 5-13 for 274 IC, or Figure 5-14 for 275 IC.
5. Perform the IC inspection (5-24) and replace the Top Cover.
6. Connect the Centronics Cable between the IC and the 4045.

7. Connect the AC Power Cord to the IC and the wall outlet.
8. Switch IC Power ON. Verify that the IC Status Sheet is printed within 15 seconds. If not, go to IC RAP (5-26).
9. Check the IC Status Sheet for errors. If errors are listed, refer to IC RAP for corrective actions.
10. Switch IC power OFF and have Customer connect Host Interface cable to the IC.
11. Switch IC power ON. After the Status Sheet prints verify that the GREEN LED is ON (5-30), indicating communication with the Host.
12. Have customer transmit a job to the 4045.
13. If unable to print the job, go to the IC RAP (5-28).

TOP COVER REMOVAL

1. REMOVE TOP COVER.
 - a. Switch IC power OFF and disconnect power cord.
 - b. Place the IC upside down.
 - c. Remove the two screws at the front of the enclosure bottom and the nut on the rear flange.

CAUTION: THE TOP COVER SWITCH HAS A PLUG CONNECTOR WHICH IS ATTACHED TO A JACK ON THE LOWER PORTION OF THE UNIT.

- d. Turn the IC right side up and lift off the cover.
 - e. Place the cover beside the bottom half of the IC.
2. REPLACE TOP COVER.
 - a. Place the top cover on the enclosure.
 - b. Turn the IC face down.
 - c. Replace the 2 screws at the front and the nut on the rear flange.

IC INTERNAL INSPECTION

1. REMOVE TOP COVER.
2. INSPECT PWBs.

NOTE: The Daughter PWB is located on the top of the right rear corner of the Mother PWB (refer to Figure 5-11).

- a. Ensure that the connectors at the back and right side of the Daughter PWB are firmly seated.
- b. Ensure that the correct Daughter PWB is installed. The number is marked on the board and printed on the IC Status Sheet. The 274 IC uses a 3274/76 Daughter PWB. If the Daughter PWB is not correct, repack the Installation Kit and call for assistance.

3. INSPECT CABLES.

NOTE: There are three cable connectors at the rear of the Mother PWB, J1, J2 and J3. Connector J3 is not used. J4 is at the front of the mother board.

- a. Ensure that the short cable from J1 to the Host Interface PWB mounted on the rear of the IC is locked in at both ends.
- b. Ensure that the Interface PWB marked "Host Device" has the correct connector for the Communication System being used. The 274 IC has a coaxial cable connector. The 275 IC has a twinaxial cable connector.
- c. Ensure that the short ribbon cable at connector J2 is connected from J2 to the connector labeled "Printer" on the rear of the IC.
- d. Ensure that the cable from J4 to the Front Panel is locked in place.

4. REPLACE TOP COVER.

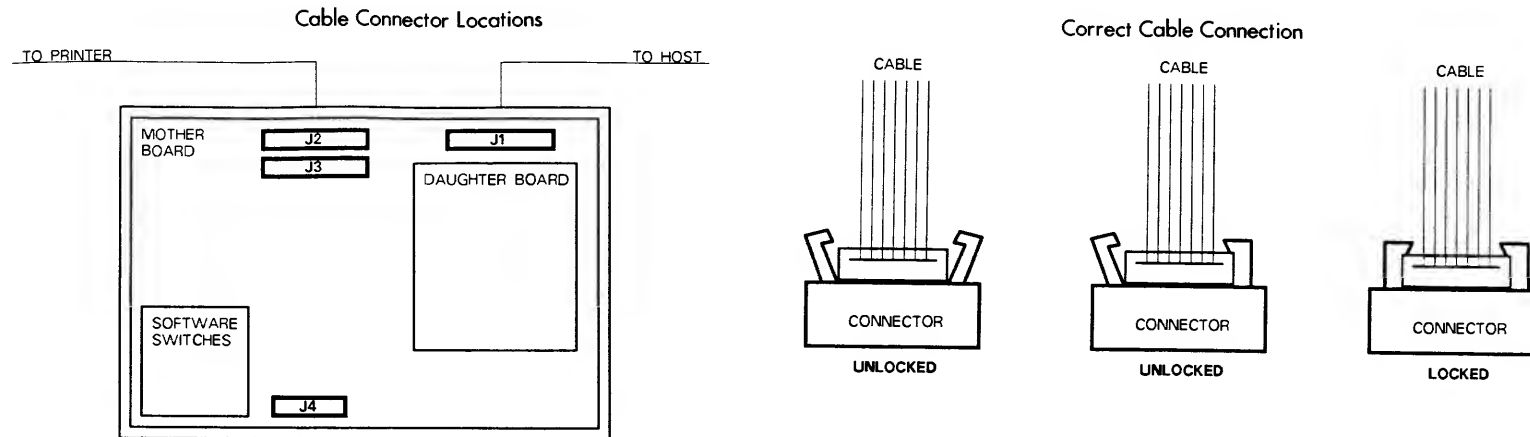


Figure 5-11. Cable Connections

INTERFACE CONTROLLER (IC) RAP

NOTE: This RAP assumes the 4045 Printer is "READY" but it does not respond to the Host/IC. If the Printer output is incorrect, the customer must check the IC switches and the 4045 Configuration Switches.

Switch Interface Controller Power on. The ON/OFF Switch lights.

YES NO

- | o Ensure that the power cord is connected and that 115/220vac is available at the wall outlet.
- | o Check the IC fuse.
- | o If the above is correct replace the IC and verify the switch settings.

After 15 seconds the 4045 prints an IC Status Sheet.

YES NO

A Switch IC power OFF. While switching power ON look through slots on the top cover. The RED LED is ON, (indicating that Power On Diagnostics are complete).

YES NO

B Switch the IC power OFF. Remove the IC top cover. Disconnect the Daughter PWB from the Mother PWB. Re-install the top cover. Switch the IC power ON. After 15 seconds the IC Status Sheet is printed.

YES NO

C D

A: The switch settings on the Status Sheet agree with the customers requirements or are set to default settings (5-30 or 32).

YES NO

- | Refer to the Installation procedure to set the IC switches (5-25).

The IC Status Sheet indicates "DB-PROM BAD".

YES NO

| The IC Status Sheet indicates "DB-BAD".

YES NO

| The IC Status Sheet indicates "DB-MISSING".

YES NO

E

Replace the IC.

o Replace the Daughter PWB.

o Replace the IC.

o Replace the Daughter PWB EPROM.

o Replace the Daughter PWB.

o Replace the IC.

B:

- o Perform the Installation Procedure.
- o Perform the Parallel Interface Test on the 4045 (5-11).
- o Check continuity of the Centronics Cable (5-9)
- o Replace the IC.
- o Call for assistance.

C:

- o Replace the Daughter PWB EPROM.
- o Replace the Daughter PWB.

D:

- o Replace the Mother PWB EPROM.
- o Replace the IC.

E: The GREEN LED on the rear of the IC is lit, indicating SYNC signals are being received from the Host.

YES NO

- | o Replace the Daughter PWB.
- | o Call for assistance.

Ask the customer to check the printer status from the Host Computer. The Host indicates that the system is ready.

YES NO

- F o Replace the Daughter PWB.
- o Replace the IC.

F: Ask the customer to send a job to the 4045. The job is printed.

YES NO

| Press the Diagnostic Switch on the Interface Controller. A Test Print is printed on the 4045.

| YES NO

- | | o Check continuity of the Centronics Cable (5-9).
- | | o Replace the Daughter PWB.
- | | o Replace the IC.

| Test Print is printed with no defects.

| YES NO

- | | o Replace the Daughter PWB.
- | | o Call for assistance.

| Possible Host problem. Call for assistance.

| Printer and IC are operating correctly, return to Call Flow.

IC TEST SWITCH AND DIAGNOSTICS

There are several diagnostic tools available to the Service Representative on the IC. These include the RED and GREEN LED's, the Diagnostic ON Test Switch on the IC, and the IC Status Sheet.

There are two RED LED's on the 274-IC. One on the rear and one inside the unit, located on the Mother PWB. The one on the rear of the 274 is NOT FUNCTIONAL. The 275 has only one LED, located inside IC on the Mother PWB. View the LED located inside the IC through the slots on the top cover.

POWER ON DIAGNOSTIC TEST

When the IC power is switched on, the RED LED:

1. Comes on for 2 seconds. (Lamp Test)
2. Blinks 5 times/second for 10 seconds.
3. Blinks 1 time/second for 3 seconds.
4. Remains "ON" continuously until the IC is powered OFF.

If the Power On Diagnostic fails, go to the Interface Contolter RAP (5-28).

GREEN LED

The GREEN LED indicates the state of the data transmission from the HOST. When the IC is receiving SYNC pulses from the HOST the GREEN LED will be ON. When no SYNC pulses are received the LED will be OFF.

DIAGNOSTIC ON TEST SWITCH

A test pattern contained in an EPROM in the IC may be printed on the 4045 by pressing the Diagnostics ON Test Switch on the IC.

This Test Pattern is identical to the Test Pattern generated by the Parallel Test Box. This Test Pattern is useful in verifying communications between the IC and the 4045 (see sample below).

274 ONLY The Test Pattern is generated by the Diagnostics ON Test Switch only when SWS1-7 is ON. When SWS1-7 is OFF, the Diagnostic ON Switch puts the 274 into the Data Monitor Mode.

INTERFACE CONTROLLER TEST

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

0123456789;<=>?@

!"#\$%&'()*+,-./[|]`z[/]_

[[[[[[[

TEST COMPLETE

SAMPLE TEST PATTERN

DATA MONITOR MODE/LINE MONITOR MODE

Three type of information are sent from the host to the IC:

1. Character codes for the text to be printed.
2. Printer control codes; Line feed, Carriage Return, Horizontal and Vertical Tabs, etc.
3. Communication Control Codes.

Data Monitor Mode causes items 1 and 2 to be printed in hex. Line Monitor Mode will print the Communication Codes in hex also.

To enter the Data Monitor Mode Hold the DIAGNOSTICS ON switch down while switching the IC power on. The IC will remain in the Data Monitor Mode until the IC power is switched OFF.

IC STATUS SHEET

The IC Status Sheet is transmitted to the 4045 15 seconds after the IC power is switched ON and the Power On Diagnostics (RED LED) pass. The Status Sheet contains the following information, as indicated in Figure 5-12.

The Mother Board is referred to as MB and the Daughter Board as DB.

1. Mother and Daughter Board Software Revision Level.
2. Daughter Board Type:
 - 3274/76 - 274IC
 - SYS3X - 275IC
 - 8100LOOP - 276IC
 - MISSING - Daughter Board not installed.
3. SWS switch settings - 1 = Switch ON
0 = Switch OFF

Switch 8 is first digit, switch 1 is last digit.
4. Mother and Daughter Board Status
 - OK - Operational
 - BAD - Problem

STATUS SHEET

$\underbrace{\text{MB-0010*DB-0018}}_{\textcircled{1}} \underbrace{*DB-3276}_{\textcircled{2}} \underbrace{*SWS1-01011110}_{\textcircled{3}} \underbrace{*SWS2-00000000}_{\textcircled{4}} \underbrace{*MB-OK*DB-OK}_{\textcircled{4}}$
 1 Pages 458736 Bytes Available

FONTS:

Resident:
Titan10iso-P
XCP14iso-L

Cartridge:
NewKosmos6-P
NewKosmos14-P
Titan15iso-P
NewKosmos6-L
NewKosmos8-L
NewKosmos10-L
NewKosmos12-L
Titan12iso-P
NewKosmos14-L
Titan10iso-L
Titan12iso-L
Classic24-P
NewKosmos10-P
Titan15iso-L
Classic24-L
NewKosmos8-P
NewKosmos12-P

Downloaded:

Figure 5-12. Interface Controller Status Sheet.

274 SWITCH SETTINGS

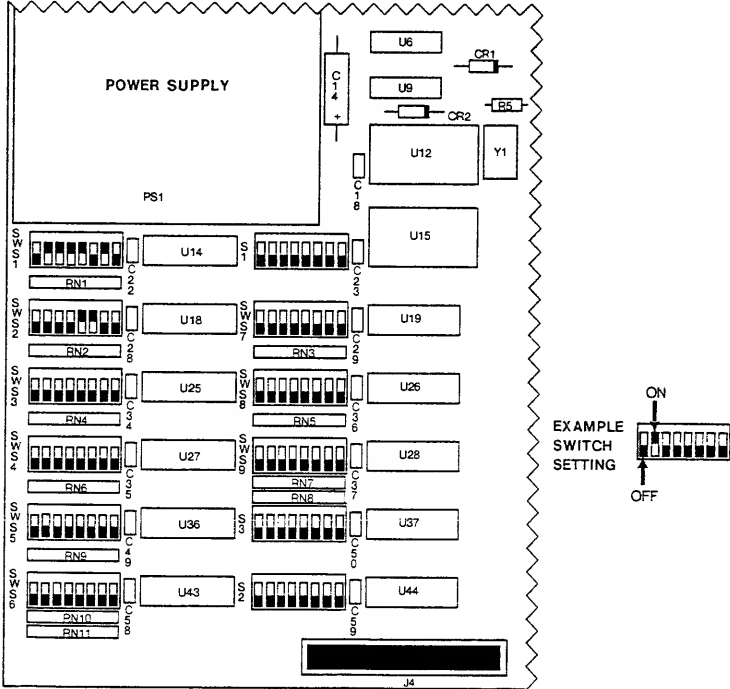
The following table describes the default positions and switch functions for SWS1 and SWS2 inside the 274 IC. Refer to Figure 5-13 for the location of the switches in their default position.

Switch Bank SWS 1

SWITCH	FUNCTION
Set S1 to OFF	Disables 3270 variable format diagnostics mode.
Set S2 to ON	Enables internal page formatting
Set S3 to ON or OFF	Indicates 8.5 X 11 inch paper (US) Indicates A4 paper (International)
Set S4 to ON	Enables CR (Carriage Return) and LF (Line Feed) after MPP (Maximum Print Position) in SCS (SNA character string) mode.
Set S5 to ON	Converts GE (graphics escape) into a hyphen in SCS mode.
Set S6 to OFF	Disables conversion of EBCDIC to ASCII.
Set S7 to ON	Enables the 274 to execute internal diagnostics when the Diagnostics switch is pushed.
Set S8 to OFF	Disables SCS format diagnostics mode.

Switch Bank SWS 2

SWITCH	FUNCTION
Set S1 to OFF	Suppresses 3276 end-of-line trailing (NULLS).
Set S2 to OFF	Suppresses 3276 end-of-line trailing (SPACES).
Set S3 to OFF	Suppresses 3270 mode NULL lines (any line consisting of NULLs and/or control characters).
Set S4 to OFF	Disables controller diagnostic test (PCIA).
Set S5 to ON	Enables the 274 to generate a CR/LF upon receipt of an EM (end of message code).
Set S6 to ON	Enables the 274 to insert a form feed on End-of-Buffer for an operator initiated local copy/screen dump.
S7 and S8	not used.



DEFAULT SWITCH SETTINGS FOR 274 IC

Figure 5-13. 274 Default Switch Settings.

275 SWITCH SETTINGS

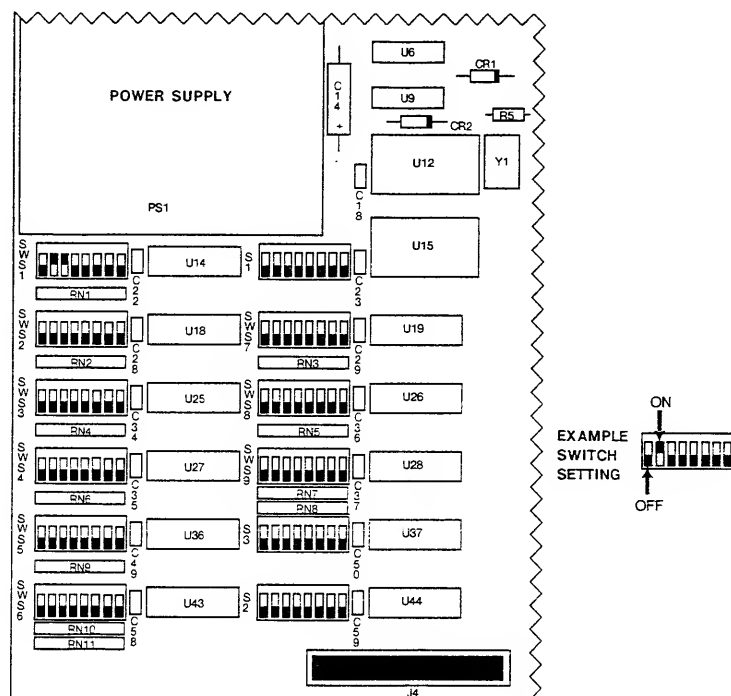
The following table describes the default positions and switch functions for SWS1 inside the 275 IC. Refer to Figure 5-14 for the location of the switches in their default position.

Switch Bank SWS 1

SWITCH	FUNCTION
Set S1 to OFF	S1, S2, and S3 are used to set the port address for the 275 IC (see 275 Port Address Selection Table)
Set S2 to ON	
Set S3 to ON	
Set S4 to ON, or OFF	For 5256 Printer Emulation. For 5225 Printer Emulation.
Set S5 to OFF	Disables HEX dump of RAM.
Set S6 to OFF	Disables conversion of EBCDIC to ASCII.
Set S7 to OFF	Disables Cancel Request Flag
Set S8 to OFF	Not used.

ADDRESS	S1	S2	S3
0	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
0	ON	ON	ON

275 Port Address Selection Table

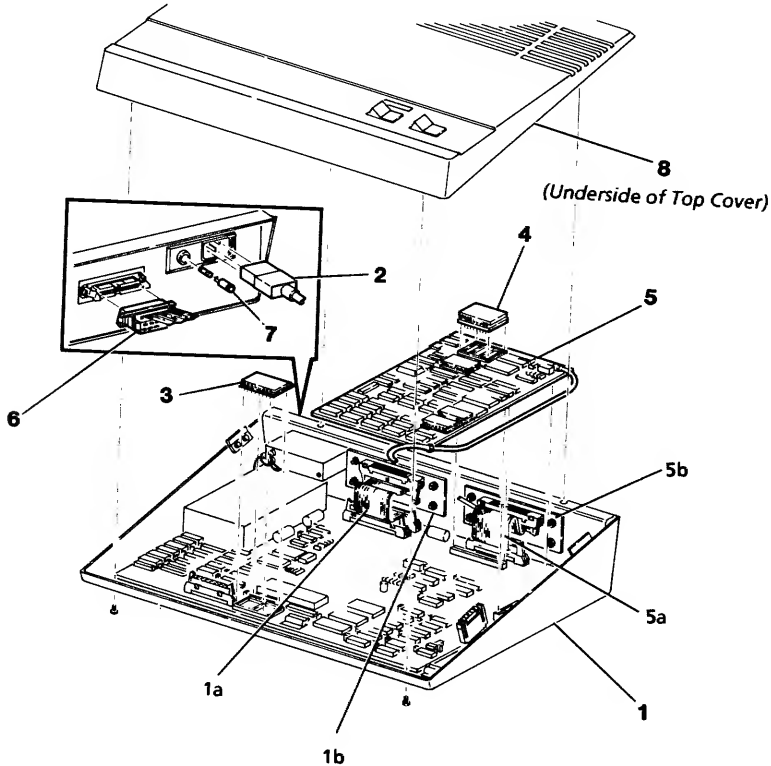


DEFAULT SWITCH SETTINGS FOR 275 IC

Figure 5-14. 275 Default Switch Settings.

1 {1, 1a, and 1b

5{5, 5a, and 5b



INTERFACE CONTROLLER PARTS LIST

ITEM	PART	DESCRIPTION
1	101S87279	INTERFACE CONTROLLER MODULE (All Models) (Note: Does not include EPROMs OR Daughter PWBA. EPROMs and DAUGHTER PWBA must be transferred from Module being replaced to new Module.)
1a	--	Ribbon Cable - Part of item 1
1b	--	Printer Interface PWBA - Part of item 1
2	117S87137	POWER CORD
3	133S87086	EPROM - MOTHER PWBA (All Models)
4	133S87087	274-IC EPROM FOR DAUGHTER PWBA
	133S87094	275-IC EPROM FOR DAUGHTER PWBA
5	140S05930	274-IC DAUGHTER PWBA
	140S07800	275-IC DAUGHTER PWBA
5a	--	Ribbon Cable - Part of item 5
5b	--	Host Interface PWBA -Part of item 5
6	152S87382	CABLE, CENTRONICS
7	108S87012	FUSE (1A)
8	091P80361	MATRIX, TAG

INSTALLATION PROCEDURE

1. Unpack ISD. Verify contents:

Interface Sharing Device
Centronics Printer Cable
AC Power Cord

NOTE: Save the shipping carton and packing material until installation is complete.

2. Inspect the ISD for shipping damage. If there is evidence of damage, do not install the unit. Call your FSM.
3. Install and verify the operation of the 4045 Printer (5-4).
4. **Serial printer interface:**
 - o Connect the RS232C cable to the SERIAL OUT Channel of the ISD and P30 of the 4045.
 - o Change the Output Channel Default to SERIAL OUT (5-43).
4. **Centronics printer interface:**
 - o Connect the Centronics cable to the PARALLEL OUT Channel of the ISD and P30 of the 4045.
5. Connect Power Cord from the ISD to the wall outlet.

6. Switch ISD Power ON. At the completion of power On Diagnostics, a Status Sheet will be printed by the 4045.
 - o If an ISD Status Sheet is not printed, go to the ISD RAP (5-46).
 - o If customer wants Status Sheet printing disabled, go to page 5-43.
7. **Serial INPUT Channels ONLY:** (If Centronics Input Channels are used, go to step 8.)
 - o Ask the customer to configure host computers for each corresponding Input Channel as shown on the ISD Status Sheet.
 - o If customer cannot configure the host computers to the ISD default settings, go to ISD Switch Settings (5-42).
8. Connect one host to Input A and verify operation.
 - o If printer does not produce a correct print, go to ISD RAP (5-46).
9. Connect remaining hosts and verify operation.

SPARE PARTS

The following field spares are available for the ISD:

Item	Part Number
ISD	101S87344
Power Cord	117E01000
Centronics Cable	152E00160
Fuse, 2 amp Slo-Blo	99P03013

ISD SWITCH SETTINGS

For SERIAL INPUT or OUTPUT CHANNELS ONLY

Switches are provided inside the ISD to reconfigure the serial channels (A, B, C, D, and O) to match the host output ports, and/or the 4045 input port configuration. The switch functions are shown on the next page.

During installation, suggest to the Customer that the hosts be configured to match the ISD default settings. If this is not possible, the customer must provide the printer port configuration for each host so that the ISD can be set to match the hosts.

To change the ISD switch settings:

- o Access the switches as shown in the following procedures.
- o Refer to the switch setting table on the following page to change the input channel configurations.

ACCESS TO CHANNEL A and O SWITCHES

The Channels A and O Switches are located under the rectangular cover on the bottom of the ISD. Refer to Figure 5-15.

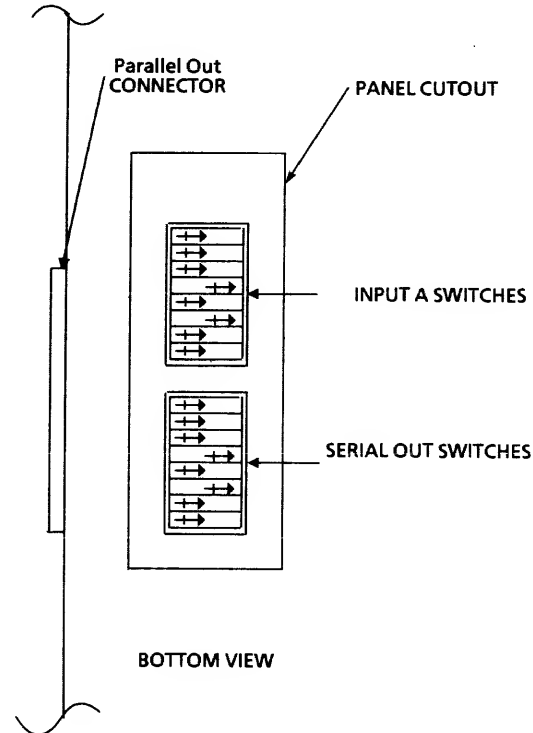


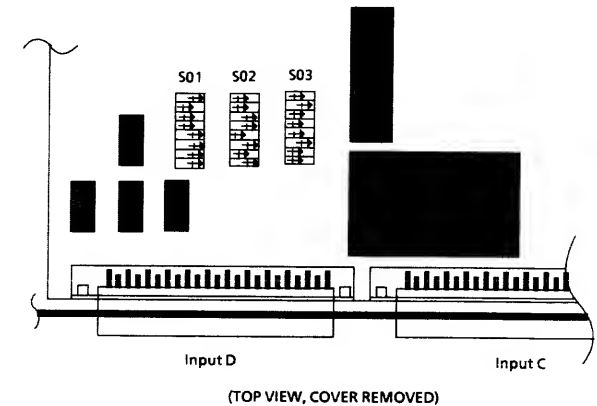
Figure 5-15. Channel A and O Configuration Switches.

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ACCESS TO CHANNELS B, C, AND D SWITCHES

The Configuration Switches for Channels B, C, and D are located on the Serial Daughter Board, inside the ISD. To access the switches, remove the ISD cover. Refer to Figure 5-16.

- S01 - Configures Channel D
- S02 - Configures Channel C
- S03 - Configures Channel B



UV02-409

Figure 5-16. Channels B, C, and D Switches

ISD CONFIGURATION SWITCHES
(For Serial Channels A,B,C, D, and O)

ISD Switch	Function	Comments
1	Bits/character	ON = 8 bits * OFF = 7 bits
2	Stop Bits	ON = 2 bits OFF = 1 bit *
3	Parity (Odd/Even)	ON = Even OFF = Odd (Ignore if Switch 4 is OFF.)
4	Parity (On/Off)	ON = Parity OFF = No Parity *
5	Handshake (Hardware/software) (see CABLING)	OFF = Hardware * Requires host to respond to Printer Ready signal on Pin 20 of ISD Input Port. ON = Software Requires host to respond to XON/XOFF codes transmitted to host by Printer.

* Factory Setting

SWITCH SETTINGS - Cont'd.

ISD Switch	Function	Comments
6,7,8	Baud Rate	See Table.
ISD Switches		
	Baud Rate	6 7 8
	75	OFF OFF OFF
	150	ON OFF OFF
	300	OFF ON OFF
	600	ON ON OFF
	1200	OFF OFF ON
	2400	ON OFF ON
	4800	OFF ON ON
	9600	ON ON ON *

* Factory Setting

FRONT PANEL SWITCHES

The 280 ISD has two output channels; one PARALLEL OUT and one SERIAL OUT. The Front Panel Switches, (A, B, C and D), will select the output channel that will be used for each input channel. When the switch indicator is ON, the output for that channel will go to the PARALLEL OUT port. If the indicator is OFF, the output goes to the SERIAL OUT port.

OUTPUT CHANNEL DEFAULT SWITCH

Switch SX on the mother PWB allows the default OUTPUT Channel to be changed from PARALLEL to SERIAL. If a serial interface to the 4045 is used, the switch position should be changed so that the SERIAL OUT Channel is automatically selected at the completion of Power ON Diagnostics. This would be indicated by the Front Panel Switch lights remaining OFF.

STATUS SHEET DISABLE SWITCH

Switch SX on the mother PWB is factory set so that a Status Sheet is always printed at power ON. To disable Status Sheet printing, change the position of SX.

INTERFACE CABLES

Printer Cable

Currently, the 280 ISD is provided with a Centronics printer cable which should be connected to a 4045 with a Centronics host interface.

If the 4045 has a serial host interface, the customer must supply the RS232C cable for connection to OUTPUT Channel 0 of the ISD.

Serial Host Cables

The customer will provide the serial, RS232C cables to connect the Hosts to the ISD. The gender (male/female) of the cable connectors will depend on the host serial output port. The ISD input channels are all male, therefore requiring a female cable connector.

Another consideration for the host-to-ISD interface is the type of serial port being used, DTE or DCE (Figure 5-17).

Since the ISD input channels are wired as DTE, they can be connected directly to a host with a DCE serial output. If the host port is wired as DTE, a NULL MODEM must be used to cross over pins 2 and 3 before connection to the ISD (Figure 5-18).

TYPICAL HOST PRINTER PORTS

Hosts will have one or more of the following output ports that can be used for printer ports to the ISD:

Centronics Parallel port:

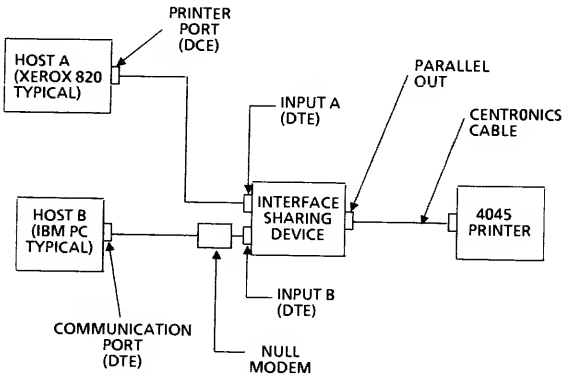
This output port can be used if the ISD is equipped with the Centronics input daughter PWB.

Serial Printer port:

This output is commonly wired as DCE, thus allowing a straight through cable to be used.

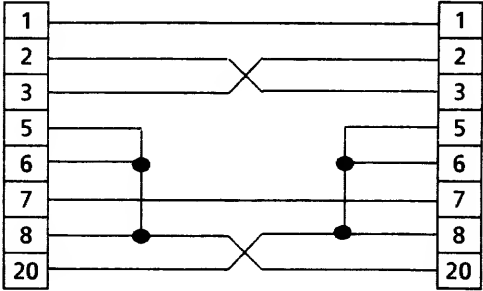
Serial Communication port:

Since this output is typically wired as DTE, a null modem would be required between the ISD and host interface ports. The IBM PC and Xerox 6045 PC have to be connected this way to an ISD with serial input channels.



UV02-410

Figure 5-17. ISD Cabling



NULL MODEM

Figure 5-18. Null Modem

POWER ON SELF TEST

The Power Self Test is run whenever the ISD is powered ON or reset. The front panel lights will flash in a programmed sequence indicating the test is running. When the test is finished, the all switch indicators will be lit unless the Default Output was changed to the Serial Channel (see page 5-43).

If the test fails, a single indicator will remain lit. When this occurs, the ISD must be replaced.

ISD STATUS SHEET

An ISD Status Sheet will be printed by the 4045 at the completion of ISD Power On Diagnostics, provided the 4045 is operational and Status Sheet printing has not been disabled (see page 5-43). The Status Sheet lists the configurations of all the serial channels (Figure 5-19). A, B, C and D are the input channels. O is the serial out channel.

HOW TO INTERPRET STATUS SHEET ENTRIES

Refer to the entries for Channel A (Figure 5-19).

A = 9600,N,8,1,XON/XOFF

9600 - Baud rate setting for the Channel

N - Parity, None, Odd, Even

8 - Bits per character. Could be 7.

1 - Stops bits. Could be 2.

XON/XOFF - Software protocol. PRN/RDY is hardware protocol.

STATUS SHEET		
A =9600,N,8,1,XON/XOFF	B =4800,O,7,1,PRN/RDY	C =1200,E,8,1,PRN/RDY
D = 300,N,8,1,XON/XOFF	O =9600,N,8,1,PRN/RDY	V1.1 REV5 PC2
458736 Bytes Available		
FONTS: Resident: Titan10iso-P XCP14iso-L		

Figure 5-19. ISD Status Sheet

ISD RAP

NOTE: This RAP assumes that the 4045 Printer is Ready, but does not respond to the Host/ISD. If the Printer Output is incorrect, the 4045 Configuration Switches must be checked.

Switch ISD Power ON. The Power Indicator lights.

YES NO

- o Ensure that the Power cord is connected and that the proper voltage is available at the wall outlet.
- o Check the ISD Fuse.
- o If the above is correct, replace the ISD and verify the switch settings.

After 15 seconds, the Power On Diagnostics are complete. The Front Panel Switch Indicators (A, B, C, and D), are either all ON or all OFF.

YES NO

- o One, two, or three of the indicators are ON. Remove cover and inspect the ISD for damage.
- o Ensure that the Daughter Board is correctly seated.
- o Replace the ISD.

A

A

A Status Sheet is printed within 15 seconds after the diagnostics finish.

YES NO

- o Remove top Cover and ensure that Switch SX on the mother PWB is in the Status Sheet enable position (refer to page 5-16).
- o Print a 4045 Configuration Sheet and ensure that the printer is properly configured to the ISD OUTPUT Channel being used, (Refer to page 5-4). Check the Configuration Sheet that was printed and saved at installation.
- o Perform the 4045 Parallel Test (5-11).
- o Check the printer interface Cable continuity (5-9).
- o Replace the ISD.

B

B

Disconnect all input cables except Port A. Ask the Customer run a print job. The job is printed by 4045.

YES NO

- o Ask customer to verify that host is configured same as ISD. Reconfigure host to ISD if necessary.
- o Try another host and ISD Input Port.
- o Call for assistance.

Connect each host to an Input Port and verify operation.